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CONSUMER BULLETIN

The original consumer testing magazine



MOBILE HOMES

TESTS OF

RECORD CHANGERS



STAINLESS STEEL FLATWARE

'61 COMPACT CARS

Test reports on
**Corvair, Ford Falcon,
Oldsmobile F-85, Valiant**

Rechargeable flashlights

SUGAR—

enemy of good nutrition

Snow removal by chemicals?

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Devices that help find the way in a dark room

There are a number of contrivances now available which eliminate the need for groping in the dark to find a light switch or an object that might be needed in an emergency, such as a flashlight. Some, widely sold in hardware and variety chain stores, employ low-wattage lamp bulbs and are dependent upon electricity for their operation. Others have a luminescent quality and glow softly without need for any external source of power. Several light sources giving faint illumination are described in this article, and their manner of working briefly explained.

Illuminated light switches

A light switch can be a most elusive object in any darkened room. And often, when one is groping around to find it, one accidentally knocks over a pitcher of water, a lamp, an ash tray, or trips over a footstool or a child's toy. Switches are available which are specially made so as to be easily found in the dark. They have a small pilot light, usually a neon bulb, which serves as the indicator, mounted above or behind the switch. This light is so connected that the small bulb is lighted when the switch is in the off position. Thus, in addition to providing a ready means for finding a switch, the lamp's glow also serves to indicate that lights are turned off in a cellar, garage, or other remote location even though the switch may be installed in another place. The *General Electric Lighted Push-Button A.C. Switch* is an example.

Luminescent marking devices and materials

Small luminescent markers are available which glow softly in the dark when attached to the cords on pull-chain sockets; thus they enable one to locate a pull chain in a darkened room. These markers are made with a luminescent material that absorbs light when it is present, and gives it off for a time during periods of darkness.

There are also available a few paint and paper-

tape type products which contain a similar sort of material. Such tapes are seen occasionally in hardware and variety chain stores. *Rapco Glowing Tape* is one that was purchased by Consumers' Research in 1958 and subjected to tests to determine its usefulness. Although the manufacturer claims "that after only ten minutes of exposure to a light source, . . . it glows visibly for hours. . . in total darkness," it was found that the glow of *Glowing Tape* actually was useful for only about an hour after it had been exposed to an intense light source for a suitable period.

Fortunately, however, there are few places that are totally dark and when even a small amount of light strikes such a material its ability to glow is reactivated to some extent. Thus, *Glowing Tape* was found satisfactory for all-night use as a marker for the light switch in a bedroom which was exposed to the lights of passing automobiles from time to time during the night. Pieces of the self-adhesive tape were found very useful in CR's photographic darkroom to mark the position of switches, timers, etc., that must be readily found in the dark following a period of illumination. The tape should be entirely satisfactory for other similar uses.

Samples of the tape were also exposed to the elements outside the laboratory for a one year period and found not to deteriorate noticeably either in appearance, adhesive properties, or ability to provide a useful glow.

Why does *Glowing Tape* glow in the dark? Actually, the principle involved is similar to a phenomenon we all now take for granted—the moving picture on a television viewing tube. When "charged" by a source of light or by a stream of fast-moving electrons (on watch bands and dials the phosphorescence may be produced by alpha or beta particles from a radioactive source), the phosphorescent material becomes "excited" and emits a small amount of light for a length of time dependent upon the kinds of phosphorescent substances (phosphors) that are used. In a television picture tube, a very short glowing time (persistence) is wanted so that motion can be registered without undue blurring of the images, and phosphors are chosen that have a glow time of only about 1/30 second. In a marker, however, a long

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The Consumers' Observation Post

WITH THE ARRIVAL OF SEED CATALOGS, the time has come to stiffen one's resistance to beautiful pictures of plants and flowers, fruits, and shrubs that don't really live up to the claims made for them. One of the latest in the never-never land of advertised horticultural miracles is the "Amazing climbing vine peaches," for the claim is made that "Each golden beauty [is] so refreshingly delicious that on a hot summer day you'll eat them smack off the vine. . . ." The San Diego Better Business Bureau in its bulletin reports that the plant is not a peach, but a type of muskmelon that one would not eat in its natural state. Its chief use is in pickles and preserves.

* * *

DRINKING FLUORIDATED MILK has brought about an 80 percent reduction in dental decay in young children. Doctor Louis L. Rusoff reported results of a four and a half year study at Louisiana State University of school children who were given each day a half-pint container of milk containing 1 milligram of sodium fluoride during school lunch. The improvement in the teeth and reduction in dental decay were clearly evident in the permanent teeth which sprouted after the children began drinking the fluoridated milk. Use of this method, of course, requires expert technical control and supervision.

* * *

SOME OF THE POPULAR PURE SILK PRINT DRESSES are the subject of consumer complaints. Dyes bleed from perspiration, spilling of liquids on the fabrics, or when the wearer is caught in the rain, according to the National Institute of Drycleaning. Dry cleaners report difficulty in removing spots or stains from such fabrics because the color bleeds so easily. The consumer who wants to buy a silk print dress should have an understanding with the store that it may be returned for full credit if the dye runs in normal use, and she should make certain that there are clear instructions on the label on how it is to be cleaned.

* * *

THOSE COIN-OPERATED AUTOMATIC DRY CLEANERS that have been tried out in certain sections appear to be gaining in acceptance. The equipment is being made by several companies including Standard, Inc., of Dallas, Great Lakes Equipment Corporation, and Whirlpool and Norge are readying two machines for the do-it-yourself market. The time required to complete the cycle of a cleaning job varies from 30 to 50 minutes. As one manufacturer admits, the coin-operated units have their drawbacks, since the machine does not clean all kinds of spots. A good quality job will still require the service of an efficient professional dry cleaner.

* * *

DRUGS FOR HELPING TO CONTROL THE APPETITE OF THE WOULD-BE DIETER are numerous. Chiefly, they are intended to be used as a crutch to help the compulsive overeater to cut down on his food intake. The whole field has been well evaluated by Dr. Walter Modell, Director of Clinical Pharmacology, Cornell University Medical College. After considering the amphetamine drugs, he comes to the conclusion that the effect of their use is relatively short lived unless the dosage is progressively increased, and this may lead to habit-forming dependence on them. Besides they may have undesirable side effects. He reports that the commonly used phenylpropanolamine will be ineffective in the doses commonly used in commercial preparations, and points out that if a large enough dosage is used, it may increase blood pressure. Sedatives and tranquilizers he considers effective only for the nighttime eater. It is Dr. Modell's view that drugs for people who overeat are useful only to a limited extent, in connection with a carefully controlled diet.

CHRONIC FATIGUE is often a symptom of organic disease that is worthy of careful investigation. According to Therapeutic Notes, published by Parke, Davis & Company, the symptoms include clumsy movements, muscles that tremble, quickening pulse rate, and rapid breathing. The tired person makes an expenditure of energy several times the normal metabolic rate. Although the tendency to tire rapidly is a symptom also of allergy and psychic disorders, it may be a symptom of an underlying serious illness and calls for a thorough medical check-up. Fatigue is also sometimes due to boredom, and in such cases rest is not a universal cure.

* * *

WHEN SHOULD YOU TRADE IN THE FAMILY CAR ON A NEW ONE? For 6-cylinder cars of the Ford, Plymouth, and Chevrolet class, a turn-in at 2-1/2 to 3 years, and for 8-cylinder cars at the end of 3 years is recommended by R. E. Runzheimer & Co., research engineering firm. This period is a compromise between increase in the cost of running expenses and repairs and the decrease in the average yearly depreciation costs. Furthermore, Mr. Runzheimer points out that the used-car demand is greatest for autos in the 2- to 3-year-age bracket.

* * *

THE ELECTRONIC RANGE is used in hotels and restaurants, but it is not yet in mass production for home use. The price, which is \$900 to \$1200 per range that can cook steaks in four minutes and eggs in seconds, is undoubtedly one reason for its lack of popularity. A top executive of one range manufacturer believes that by 1963 the price will be down to \$250 to \$300 and within the means of the average consumer. Other electronic devices that are past the drawing-board stage will permit the locking of house doors from one's bedroom, controls that automatically shut windows when it rains, as well as doors that open with the flick of a switch. Whether consumers who are already having service troubles with the mechanized home servants they now have will go for these new potential electrical and mechanical troublemakers is another question.

* * *

COIN-OPERATED LAUNDRIES are developing extensively. In one area, they are being run in connection with supermarkets. Although admittedly the project is still in an experimental stage, the promoter is trying to find out whether the consumer wants to have her wash done while she does the marketing. In some areas, other vending machines, such as coin-operated hair dryers, are reported to be popular, as well as coin-operated ironers and mangles. So far, however, appliance dealers report that the self-service laundries have not adversely affected the sale of automatic washers and dryers, although in some sections, such as Dallas, Texas, and Grand Forks, North Dakota, dealers think there may be some unfavorable influence on their sales.

* * *

TRAVELING BY JET may be exciting and fast, but there are disadvantages. For the quietest ride, sit ahead of the engines, recommends Urban M. Allen, in the PSA Journal. He warns that the time saved in the air may be lost on the ground on arrival, for jet airports may often be located further out of the city of their destination than airports for regular planes.

* * *

MEN'S SUITS are expected to go up in price this spring again due to higher labor costs. The man who buys a new Easter suit will likely pay about \$5 more for it although it is possible retailers will be somewhat cautious in raising prices since inventories are reported to be heavier than a year ago. There will be a greater number of permanently-creased trousers this spring which will at least save on pressing bills. It is well known that men prefer old clothes to new and no doubt many will welcome a chance to save money by passing up a new suit this coming season.

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Consumer Bulletin

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Listings usually are arranged in alphabetical order by brand name (not in order of merit) under each quality or performance rating. A numeral 1, 2, or 3 at the end of a listing indicates relative price, 1 being low, 3 high. Where the 1, 2, 3 price ratings are given, brands in the 1, or least expensive group, are listed alphabetically, followed by brands in price group 2, also in alphabetical order, etc. A quality judgment is wholly independent of price.

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Cover photograph of the mobile home, courtesy of Mobile Homes Manufacturers Association

Buying a mobile home



Courtesy Ventours Corp.

You CAN take it with you

WELL over one million trailers and mobile homes are currently in use, and more than 85 percent of these are occupied as permanent dwellings. Nowadays "trailer" generally means a temporary shelter which can be towed by a passenger car and which is used on vacation or similar trips. A "mobile home" (sometimes spelled as a single word) is a relatively large movable residence, so large that, as a rule, a commercial haulage firm must be hired to move it from one location to another.

The average such unit, despite its potential mobility, is likely nowadays to stay in one place about 2½ years. Many have never been moved from the sites on which they were first installed. This situation, of course, is a far cry from the concept of trailer dwellers as nomads whose homes follow their cars as fancy dictates.

We are a nation of movers

In a recent study of schools, Dr. James Bryant Conant observed that "Population mobility in the United States is so great that in some metropolitan communities only a small fraction of those who graduate from high school have attended elementary school in the same system." Census figures indicate that about one fifth of the population moves each year. As a matter of fact, 2½ years at one address is not now an exceptionally short stay even for some of those who dwell in non-mobile apartments or in one- or two-family houses of the sort that are attached firmly to their sites. It is thus not surprising that movable dwellings are popular, and becoming more so.

Who lives in mobile homes?

A survey of mobile home owners conducted by the Mobilehome Education Program at Michigan State University showed that a representative group of family heads were in the following occupational groups: professional, 18 percent; skilled, 37 percent; military, 20 percent; retired, 10 percent; students, 3 percent; others, 16 percent.

About 45 percent of the mobile homes housed families of two, 10 percent of the families included

five or more, and the average family size was 2.9 persons. Just about half of the families had children under 18 years of age, and among these there was an average of 1.9 children per family. Nearly one quarter of the mobile home families had incomes over \$7000 per year, with the average about \$5300.

Nine out of ten of those in the survey said a mobile home was satisfactory; four out of five preferred mobile homes to fixed houses. Two thirds of the owners indicated that the one biggest drawback to living in a mobile home is the difficulty of finding good parks.

"Trailer camp," "trailer court," and like phrases are generally used to designate areas for travel trailers or for the smaller trailers which were made and used for family living some years ago; the various terms, however, do not have universally accepted clear-cut meanings. "Mobile home park" or "court" and similar terms are used to describe areas arranged and equipped to accommodate the larger living units made in recent years. There are about 15,000 establishments listed in Woodall's Mobile Home Park Directory, offered at \$2 by Trailer Travel Magazine, 121 W. Wacker Drive, Chicago 1, Ill. (also available in many public libraries), and many other parks exist which are not included.

Should you buy a mobile home?

A family whose size and ages of members permit it to live in a small home or apartment, and especially any small family whose principal wage earner can expect frequent changes of location, may well consider moving its home as a whole, instead of the furnishings separately.

When the mobile home is moved, the trucker's charge will likely be in the 40-to-50-cents-per-mile bracket. Charges for preparing the unit to be moved, and blocking and hookup at a new site, are but a few dollars additional. By comparison, moving from one fixed home to another involves trucking costs for furniture and other belongings, plus indirect moving costs such as housing ex-

penses while one is finding a new home or getting it ready for occupancy, and redecorating and refurbishing it to fit the family's tastes and needs. There are often also commissions for the sale of an old home and possibly a loss on its value. In some such cases, of course, depending upon many local conditions, there may be a rise in market value, but generally speaking, those who are forced to move frequently by the exigencies of their work are likely to lose money in the over-all transaction.

The purchase price of a new mobile home of the size most commonly bought nowadays, 10 feet in width by about 50 feet long, varies from about \$4500 to about \$13,000. Besides the cost of the home itself, there are rental for park space (or purchase price for the space, possibly with a monthly service charge besides); the costs of electricity and fuel for heating, lighting, cooking, laundering, etc.; taxes; insurance; and maintenance and repairs.

A common financing practice is to pay 25 percent down, and the balance, with interest, in monthly instalments over 5 to 7 years (in some cases as long as 10 years). Most lending agencies compute the interest for the entire period of the loan at the prevailing rate and add it to the unpaid balance; the total is then divided by the number of months in the loan period to determine the monthly payment. This "add-on" system is widely used in short-term financing of many kinds of merchandise.

For an \$8000 purchase, with a down payment of 25 percent and the balance of \$6000 to be paid, with interest, in equal monthly instalments over a 7-year period, the total charges for interest at 6 percent by the add-on method would be \$2520 [$6\%/yr. \times 7 \text{ yr.} = 42\%$; $42\% \times \$6000 = \2520]. At 6 percent true annual interest (interest computed on actual balances still owed from month to month, the kind of financing usual for fixed homes), the interest would be \$1275, approximately half the other figure. However, even at a lower true rate, the buyer of a fixed house will usually pay as interest both a larger total sum and a larger fraction of his payments than a mobile home buyer. The reasons are simply that fixed houses usually cost more and financing is generally extended over many more years than for mobile homes.

Because of the relatively high interest charges for financing a mobile home, the buyer who has other assets, securities, for example, will often do well to sell them or to borrow on them if possible at relatively low rates, in order to be able to pay cash in full for the mobile home. This is a complicated problem which may involve tax aspects also; the prospective buyer should seek financial

advice from competent and disinterested persons, an officer of his bank, or a lawyer, for example.

Selecting a mobile home

Several codes or sets of specifications call for specific requirements in mobile homes, and a

A mobile home for retirement?

A mobile home has many attractions for the retired couple whose children, if any, are grown and away from the parents' home.

One advantage not immediately obvious perhaps may be the release of capital for investment to augment income. Frequently the couple will own a home which can be sold for considerably more than the cost of a very satisfactory mobile home.

Consumers' Research does not advise any retired person to make a precipitate or irreversible change to mobile home living. When at all possible, a major change in one's ways of living should be on a trial basis without burning all bridges behind. Some people find they just don't like living in mobile homes. Unless you have friends with tastes and habits similar to yours who live in mobile homes and like it, it may be wise to rent the house, even close it up if necessary, and try mobile home living for a while before committing yourself to the final decision of selling the old fixed home. Mobile homes sometimes can be occupied on a short term rental basis; ask about this at parks in which you might like to live.

One disadvantage that some retired people have found in mobile homes is that they no longer have the room they would like to have to entertain visiting children and grandchildren. This problem may not be considered a serious one by those who save a substantial amount of money through mobile home living, for visitors may often find it convenient to lodge at a near-by motel or hotel.

Whether you are just interested in knowing a little about mobile homes, or you are considering trying one for a while, or you have definitely decided that this is the life for you and a helpmeet tired of housework, mower-pushing, and snow-shoveling—the accompanying article contains much that will interest you and may be of great value.

buyer can be guided to some extent by whether or not a given unit is guaranteed to comply in all details with the requirements of a certain code. A "Gold Seal" represents the maker's assertion of compliance with the code of the Mobile Home Craftsmen's Guild, 221 N. LaSalle St., Chicago 1, Ill. The Guild will send a copy for \$1.

Another symbol is the "MHMA/TCA" seal which asserts compliance with the standards adopted jointly by the Mobile Homes Manufacturers Association and the Trailer Coach Association; this code requires standards very similar to those imposed by law in some states, notably California. Copies are obtainable from M.H.M.A., 20 N. Wacker Dr., Chicago 6, Ill., at \$1. The MHMA/TCA code relates only to electrical, plumbing, and heating features, whereas the Gold Seal code includes also requirements about body construction.

In each case, the seal is to be used only by members of the particular association, but there is nothing to prevent a non-member manufacturer from meeting or exceeding the specifications. The buyer should give primary weight to a clearly worded, specific, written guarantee that a unit meets certain stated standards rather than to whether or not a certain seal is present or the manufacturer is a member of a particular association. Any published standards to which reference is made should be identified by such information as edition number or date of issue, in addition to its title. The guarantee should state exactly what the guarantor will do if any parts or features are not in accord with the terms of the guarantee.

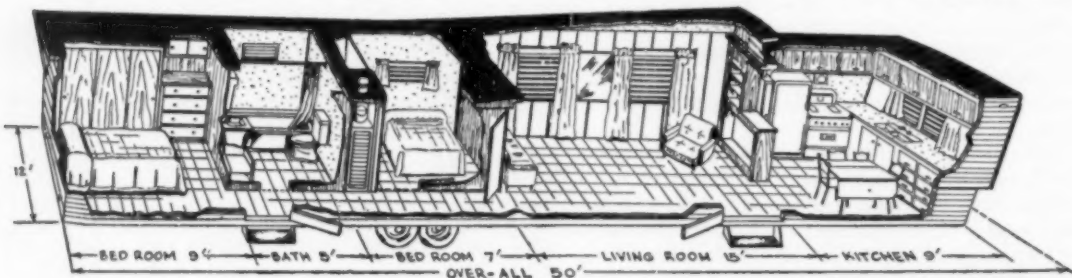
That the presence of a seal is not in and of itself a valid and dependable guarantee is made clear by the following paragraph quoted from the booklet which contains the Gold Seal standards:

Each individual Manufacturer who is a member of the Mobilehome Craftsmen's Guild warrants and guarantees his product to the initial purchaser individually. The Mobilehome Craftsmen's Guild makes no warranty or guarantee whatever of the individual manufacturer-member's product. The

sole obligation of the Guild is to develop standards to which the individual members agree to adhere, and to remove from membership any member who consistently fails to do so.

Within the last year, the Gold Seal code has been extensively revised; many requirements are more stringent and set forth in greater detail in the new edition. Features in the latest version (4th revised edition, June 1960) which relate to the safety of owners are: vertical vents for all fuel-burning appliances; 3-wire, grounding type electrical receptacles throughout the home; 12-gauge wire in at least three general-purpose branch circuits and one branch circuit for portable appliances; circuit breakers, instead of plug fuses, on all circuits. [Plug fuses are actually better, because they blow faster and more surely when hazards develop. Circuit breakers do have the advantages, however, that they cannot readily be changed to heavier ratings, short circuited by pennies, or otherwise circumvented.] Other requirements: A 3-inch main drainage vent for plumbing or one at least equal in diameter to the main drain; protection of the electric cable by strong metal plates or tubes where it passes through framing members, to prevent fasteners from piercing the cable and causing short circuits.

The body construction section of the code describes features important for value and comfort, such as: 1) window area must be equal to or more than 10 percent of floor area; 2) appliances must be removable for repair or replacement without damaging any cabinetwork; 3) the heating system must be designed to heat the home to a specified temperature under stated outdoor conditions; 4) minimum closet and drawer space per person is specified; 5) drawers must be of sturdy construction and must have guides and stops for easy operation; 6) walls are made with panels glued to framing members to provide strength to resist flexure (a deflection test is employed to test body strength); 7) floor covering of linoleum or plastic tile must be standard gauge or equivalent,



Courtesy Mobile Homes Manufacturers Association

The layout of a large mobile home (this one is a "twelve-wide") can provide room for comfortable living. Note that privacy is protected where needed, but non-essential partitions are omitted so that the arrangement gives a satisfactory illusion of space and depth.



Good design provides large window area in proportion to floor space.

which is heavier than the more common service gauge; 8) insulation equivalent to 1 inch of cork is required in walls, roof, and floor.

All of the foregoing requirements relate to matters which are of prime importance to the buyer of any mobile home, whether it purports to meet the Gold Seal standards or not.

Dealers purchase mobile homes of brand names, in models, and with fittings and furnishings which they think their customers will want. If you want something different from the units displayed, the typical dealer will first try to get you to take something he has on hand, but if you are sure enough of what you want, he can place an order with the manufacturer. A model involving several changes in construction will likely be priced somewhat above the regular production model. However, changes in furnishings should be available at no charge beyond the difference in price of the items.

It is wise to check upon the dealer, his financial standing and responsibility in the community, and talk to some people who have bought homes from him to see if they were dealt with honestly and fairly. Many dealers and salesmen are not well schooled in knowledge of their product. If you are interested in specifications and technical details, the manufacturer's literature will usually supply the answer, but if it does not, a letter, or a visit to his plant, will produce the information desired. Most manufacturers are pleased to arrange for factory visits by prospective buyers.

The following list is by no means a rating of all makes. (There are about 400 manufacturers altogether, and many times that number of brand names.) Each price given is the "suggested retail price" of a 10 foot by 50 foot, two-bedroom mobile home, or the nearest size offered. (Some makers have two price lines in the same size.) Prices do not include state or local taxes, delivery charges, transportation, preparation charges, nor accessories or furnishings not regularly included by the manufacturer. Because of freight costs, it is possible to save as much as several hundred dollars by purchasing a unit built near to the place you want to use it. Where no price is given, information was not available.

A. Recommended

Makers of the following brands offer mobile homes said to conform to the Gold Seal code.

ABC (ABC Coach Co., a subsidiary of Vought Industries, Inc., plants in Clarion, Pa., and Loveland, Colo.) \$8275. (Some units only of this maker carry the Gold Seal; recently the firm resigned from the Guild.)

American (American Coach Co., Cassopolis, Mich.; plants also in Newton, Kans., and Milledgeville, Ga.) \$5260, \$6130.

Branstrator (Branstrator Engineering Corp., Fort Wayne, Ind.) \$7295.

Herrli (Herrli Industries, Inc., Elkhart, Ind.) \$8076.

Landola (Landola Trailer Mfg. Co., Inc., Converse, Ind.) \$6240, \$10,900.

Owosso (Owosso Mobile Homes, Inc., Owosso, Mich.) \$6825.

Peerless (Peerless Mfg. Corp., Fort Wayne, Ind.; plant also in Lake City, Fla.) \$6614, \$7187.

Smoker (Smoker Lumber Co., New Paris, Ind.) \$8000, \$10,150.

Vagabond (Vagabond Coach Mfg. Co., New Hudson, Mich.; plant also in Alexander City, Ala.) \$7250.

Ventoura (Ventoura Corp., Elwood, Ind.) \$7115, \$7525.

Viking (Viking Mfg. Co., Inc., Anaheim, Calif.) \$6742, \$10,055.

West-Wood (West-Wood Products, Inc., Cassopolis, Mich.)

Zimmer (Zimmer Industries, Inc., Elwood, Ind.) \$6743.

B. Intermediate

The following brands are said to conform to the MHMA/TCA code or State of California code, or to both.

Detroit (Detroit Mobile Homes Mfg., Inc., St. Louis, Mich.; plants also in Hutchinson, Kans., and Drayton Plains, Mich.) \$4831.

General (General Coach Works, Inc., a subsidiary of Vought Industries Inc., Marlette, Mich.; plants also in Loveland, Colo., and Tavares, Fla.) \$4395, \$5450.

Great Lakes (Guerdon Industries, Inc., Marlette, Mich.; plants also in Lake City, Fla., Newton, Kans., Corona, Calif., Boise, Idaho)

Kit (Kit Mfg. Co., Long Beach, Calif.; plants also in Caldwell, Idaho, and McPherson, Kans.) \$5895, \$7545.

Marlette (Marlette Coach Co., Marlette, Mich.; plants also in Americus, Ga., Great Bend, Kans.) \$4950, \$5750.

New Moon (New Moon Homes, Inc., Dallas 7, Tex.; plants also in Alma, Mich., Americus, Ga., Hazleton, Pa. [Plant at Rapid City, S. Dak., recently burned out]) \$5250.

Paramount (Pan-American Trailer Coach Co., a subsidiary of Vought Industries Inc., Monrovia, Calif.; plant also at Clarion, Pa.) \$6153, \$6545.



Sugar,

enemy

of good nutrition



FORTUNATELY, a good many consumers nowadays have learned in school, or from their dentists, that consumption of too much starchy or sweet foods is bad for health, that sugar, sweets, cakes, and soft drinks produce a fundamental unbalance in the diet and contribute very definitely to tooth decay.

Since a major part of the calories consumed per person in the United States comes from concentrated fat and carbohydrate foods, and since the fat and carbohydrate foods together provide less than 1/20 of the essential nutrients required by the body for health, the potentialities of harm from the increasing consumption of refined carbohydrates (chiefly cane and beet sugar and foods made with them) are only too obvious.

Propagandists boosting sugar consumption

We found much of interest in a recent pamphlet called "Soft Drinks and the Balanced Diet," promulgated by the American Bottlers of Carbonated Beverages, and directed to the "grade school teacher" to help her decide "where we stand" in the matter of the usefulness of sugar as a dietary supplement."

The pamphlet is full of misrepresentations of the most serious character, and it is to be hoped that teachers are aware of its strong bias in favor of sweets, and for the sake of the children under their care will know how biased the bottling trade's views are, where sales of its products are concerned. The pamphlet notes that the cost of meat, vegetables, and fruit is relatively high, while sugar is a cheap source of calories, because an acre of sugar beets produces very large numbers of calories compared with other foodstuffs. Soft drinks are lauded because, being attractive to the taste, "they encourage an adequate daily intake of liquid" and provide "quick energy." The pamphlet ends on the note that the average sized bottle of soft drink does not contain enough calories "to interfere in the least with his [the child's] appetite for necessary foods."

This statement and others in the pamphlet are

A very large proportion of the foods we eat nowadays, constituting 50 percent or more of our food energy intake, provides calories or "fuel" value, but lacks entirely or almost entirely the natural proteins, minerals, and vitamins essential to health. These deficient food products—chiefly exemplified by foods containing a great deal of refined sugar, syrups, bleached white bread and cake flour, heat-processed, sweetened cereals, and the popular cooking fats—are the "empty calorie" foods that we should reduce to a minimum in our diets. Factory additions of vitamins to an inherently deficient food, such as bleached and chemically "matured" flour, do not make a good food out of a poor one; moreover, one cannot balance a poorly chosen diet by taking vitamin and mineral dietary supplements.

misleading, and are misrepresentations of the nutritional facts. Nothing is clearer at the present time than the great unbalance of the average American's diet, especially the diet of children, through overconsumption of foods which are high in calories, and lacking, as are sugar and nearly all "soft drinks," in everything else of nutritional significance.

The National Confectioners' Association is another of a number of groups which have aimed their propaganda at adults responsible for the health of children. In one of the association's efforts to break down public distrust of sugar and sweet foods, this trade association set in motion, for publicity purposes, a search for a child who had never had cavities in her teeth, and then having found her, made the six-year-old girl a present of an amount of chocolate candy equal to

her weight (45½ pounds), or as a dental journal put it—"45½ pounds of cariogenesis" (production of localized progressive decay or disintegration of the teeth, commonly termed tooth decay).

The effect of the publicity stunt was just what was intended; there were stories and pictures in the newspapers, and the child appeared on television, to the undoubted great benefit of the candy trade—and the undoubted miseducation of many thousands of children and their parents. The psychologic impression that readers and viewers of the incident were to receive was, of course, that the 45½ pounds of candy could not possibly hurt the child, or any other child—a subtle and clever piece of promotion, as the Dental Digest expressed it.

Grossly excessive sugar consumption

The average American's purchases of sugar at the retail level have ranged from 123 to 137 grams per day (well over ¼ pound) for the years 1949 to 1957, or about 100 pounds per year per person. There can be no doubt whatever that a high proportion of tooth decay in children and adults is a close reflection of their sugar consumption, chiefly in candies, cakes, pies, ice cream, and soft drinks. Sugars and starches provide about 50 percent of the calories of the average diet, and the proportion is much higher for people in the lowest income levels, who unconsciously select those foods which give them the most calories for the money, without regard for the *essential food elements* of protein (the most important), vitamins, minerals, essential fatty acids (found in fish and in most unhydrogenated vegetable oils). All of these essential food substances are absent from sugar.

The manufacture of sugar has reached such a point of technical perfection that all the vitamins and minerals that were present in the sugar cane or beets are left behind in refinery residues; the only creatures to benefit from them are the cattle which are fed on the molasses or its residues after distilleries have converted the molasses into alcohol. The "pure calories" which constitute refined sugar are precisely the kind man does not need and cannot use with benefit to digestion and to health.

The sugar propagandists' advice should not be followed

Sugar Information, Inc., a public relations office for the sugar trade, offers the startling advice that for health and to maintain one's correct weight one should eat "sugar and the good things containing it." They add: "Sugar must be one of our most needed foods—that's why we like it so much." These are two of several basic contribu-

tions to misinformation from Sugar Information that appeared in one full-page advertisement in a big-circulation popular magazine some years ago.

Dr. W. Philip Phair, Secretary, Council on Dental Health, American Dental Association, wisely commented that high and frequent consumption of sugar in soft drinks, candy, jams, sweet desserts, and sweet snacks constitutes a major dental health hazard. Sweets, he said, must not be used as a convenient substitute for more nutritious foods.

Dr. Robert L. Weiss of the Public Health Service found that eating carbohydrates between meals, especially foods containing sugar, such as candy, gum, soft drinks, pastries, and ice cream, favored the development of tooth decay, and increased the number of decayed, missing, and filled teeth in children.

Margaret A. Dunham, Nutrition Director of the Indiana State Board of Health, found that average children, in a survey she conducted, ate five times a day, that they averaged four defective or missing teeth each, that half had some degree of inflammation of the gums. (These conditions, of course, are indicators of poor nutrition.) Miss Dunham found that the rate of decay of teeth rose with increased amounts of carbohydrates in the diet.

"Sugar," says a pamphlet of the Missouri Board of Health, "is a very important causative factor in caries [tooth decay]. A remarkably low degree of caries was observed in children on a low-sugar diet [even though it was] deficient in calcium, phosphorus, and vitamin D. Active caries was induced in children by increasing the sugar intake while they were receiving a diet that nutritionally was adequate. Ingestion of low-sugar diets by children is conducive, as a rule, to freedom from caries." Carbohydrates (chiefly sugar and starch) are the only kinds of food substances that can be converted by fermentation in the mouth into an acid of sufficient strength to dissolve the enamel of teeth.

Recent research on bad effects of sugar on teeth

Not long ago, a biological chemist, Professor James H. Shaw, at the Harvard School of Dental Medicine, reported on his 10 years of research on the effects of sugar on tooth decay; his research received "material support" from the Sugar Research Foundation, Inc. Some of the findings on test animals indicated conclusions similar to those that had been arrived at many times by other investigators of the relationship of sugar intake to tooth decay who had studied the subject by different and less exhaustive methods than Dr.

Shaw. (Possibly the first technical report on the harm done to teeth by refined starches and sugars was published over 50 years ago; the study by W. D. Miller [Dental Cosmos, Vol. 47, 1905] showed that bacteria growing in solutions of starch and sugars produce acids which can dissolve tooth enamel and thus help to cause tooth decay.) Dr. Shaw and his associates found that the absence of sweet foods in the mouth completely prevented tooth decay in test animals, that when animal diets that were used were free from carbohydrates, or contained only small amounts of sucrose (cane or beet sugar) or starch, no tooth decay developed. Increases of sucrose or starch resulted in progressive increases in tooth decay. Diets high in natural starches and dextrins also caused the beginning and extension of decay damage to the teeth but to a lesser extent. Addition of sugar



to test diets of natural foodstuffs increased tooth decay further. Substitution of raw sugar for refined sugar did not reduce the extent of decay produced.

Many have the idea that harm done by sugar arises from the fact that refined sugar is used, rather than a more natural sweet, such as honey, sorghum syrup, or maple or brown sugar. This is a mistaken idea. There is little evidence that the trend of tooth decay could be greatly diminished by a change in the type of sweet, at least to

a type that would be acceptable to most Americans. Dr. Shaw found that all kinds of sugar—sucrose (the ordinary table sugar), fructose (present in fruit), glucose (present in grapes and starchy foods), lactose (in milk), and maltose (in beer)—tended to hasten tooth decay. Dr. Shaw did, however, find that a special product, spray-dried blackstrap molasses (not at this time available for purchase by consumers), when substituted for refined white sugar, brought about striking reductions in the incidence of tooth decay.

Dentists recognize that if there is a rapid development of tooth decay, a recent change in the diet with a markedly increased sugar intake may be involved. Perhaps the patient has lately developed the habit of increasing sugar consumption by the frequent eating of candy (especially sugar candies, allowed to dissolve slowly in the mouth), mints, cough drops, lozenges, stomach acid neutralizers, or troches, or by drinking large quantities of soft drinks or fruit juices.

Burning sensations in tongue or palate may go along with this effect, as a result of a large sugar intake with minimum protein. (One must remember that protein intake will be decreased automatically, when consumption of sugar and starch is increased.)

Sugar harms far more than our teeth

Sugar does much more harm to health than that due to its effect on teeth. It tends to produce obesity (a major ailment in the U.S. that contributes greatly to the shortening of life), and to bring about higher serum cholesterol values (a technical term defining a condition of the blood that favors a tendency toward atherosclerosis, or coronary disease). Sugar produces, indirectly, a generally poor state of health through unavoidable displacement from the diet of essential food values present only in *natural* protein and carbohydrate foods and fats, which commonly carry their due measure of vitamins and a few other absolutely essential food substances, including minerals.

Nutritionists of the Department of Agriculture at a major nutritional research center have recently added sugar to the lengthy list of foods suspected of causing trouble for the heart and arteries. The use of sugar to supply the carbohydrate in the standard diet of rats doubled their serum cholesterol values. Feeding of starch, on the other hand, instead of sugar, favored low cholesterol values. Sugar-plus-fat food combinations tended to make rats store much more of their food intake as body fat. Thus, the presence of sugar and fat together in the diet would seem to have a strong effect in causing obesity and interfering

with the body's normal ability to burn up or utilize its normal intake of fat. (Starchy foods alone did not appear to interfere with the body's using the fat as it should.) Typical foods high in fat and sugar are cake, candy, ice cream, puddings, pies, pastries, and other rich baked goods.

The quick assimilability of sugar is believed to be one of the reasons for its unfavorable effects. Starch is utilized more slowly by the digestive organs, which can thus handle it in normal, easy stages. The "quick energy" claimed by the promoters of sugar, candy, and soft drinks is not an advantage, but a major count against them.

Heart disease related to overuse of sweet foods

A British investigator found a statistical correlation between sugar consumption of a population and coronary disease, suggesting that coronary thrombosis is related to what he called "higher living standards." (Actually greater sugar consumption in the United States tends nowadays to go with *lower* living standards, since sugar is one of the cheapest sources of calories and requires a minimum of preparation for convenient use.)

A distinguished anthropologist, Dr. Stanley M. Garn of Antioch College, who has closely studied dietary habits of young people, refers to young America's practice of gorging on a diet which is called "one great big milkshake," while through the stimulation of advertising, tap water is being replaced by sugared juices, milk, and carbonated drinks, snacks have become a ritualized part of the movies, and extra consumption of candy and nuts is tied to television viewing. Dr. Garn recommends that the six-year-old child be kept from eating his way to an early grave at 60, even if it means making life less joyous in the childhood

period. He and others have observed that heart and artery diseases, including hardening of the arteries, far from being characteristic of adult years only, actually begin with overnutrition in childhood. Able investigators have reported that development of a tendency toward atherosclerosis in later life is most rapid in boys and young men between the ages of 10 and 25. Followed by young persons, faulty diets unbalanced with much fats, sugar, and other refined carbohydrates pave the way for coronary attacks in adult life. Junior's diet, beginning in the nursery school, may be preparing him for a coronary occlusion in later years. This danger is one that should be taken to heart by every parent, especially parents of children that are young, with yet unformed food habits, and hence more likely to be subject to close parental control of their choice of foods.

Meats, vegetables, and other protective foods have been displaced to such an extent that more than two thirds of the calories Americans consume come in the form of sugar, white flour, and processed fats. These foodstuffs lack natural high-quality protein, mineral and vitamin substances. Highly processed and refined foods like sugar, syrup, chemically modified and unenriched bleached white flour and cake flour have been called "parasitic" in that they require and take from the body's tissues stored vitamin factors necessary for effective utilization of these foods by the bodily processes. Anyone who consumes two thirds of his daily food intake in the form of foods devoid of or deficient in vitamin and mineral substances is obviously taking great risks of injury to health and may lose his normal resistance to infections. One cannot rely on the remaining one third of the food intake to provide all that is needed of essential protein, vitamin, and mineral substances.

(To be continued in a later issue.)

FOOD AND NUTRITION BOARD, RECOMMENDED DAILY DIETARY							NATIONAL RESEARCH COUNCIL ALLOWANCES', REVISED 1958						
DESIGNED FOR THE MAINTENANCE OF GOOD (Allowances are considered to Apply to Persons)							NUTRITION OF HEALTHY PERSONS IN THE U.S.A. (Normally Vigorous and Living in Temperate Climate)						
Age Years	Weight kg. (lb.)	Height cm. (in.)	CALORIES	PROTEIN gm.	CALCIUM gm.		IRON mg.	VITAMIN A I. U.	THIAMINE mg.	RIBOFLAVIN mg.	NICOTINIC mg. eqvt.	ASCORBIC ACID mg.	VITAMIN D I. U.
Men	25	70 (154)	175 (69)	3200 ²	70	0.8	10	5000	1.6	1.8	21	75	—
	45	70 (154)	175 (69)	3000	70	0.8	10	5000	1.5	1.8	20	75	—
	65	70 (154)	175 (69)	2550	70	0.8	10	5000	1.5	1.8	18	75	—
Women	25	58 (128)	165 (64)	2300	58	0.8	12	5000	1.2	1.5	17	70	—
	45	58 (128)	165 (64)	2200	58	0.8	12	5000	1.1	1.5	17	70	—
	65	58 (128)	165 (64)	1900	58	0.8	12	5000	1.0	1.5	17	70	—

Note the allotment of protein, vitamins, and minerals recommended for health and vigor. Sugar lacks all of these, and many of them are deficient or entirely absent in refined fats and starchy foods that constitute a major proportion of our diet. "Enrichment," now a common practice in the food industry, especially with bread and cereals, is only a makeshift, restores only part of nutritional essentials that manufacture has removed from natural food materials; the term enrichment, in itself, is highly misleading to consumers.

FOUR 1961 COMPACT CARS

Corvair



Indications are that several troubles that plagued the early 1960 models of the Corvair have been corrected, and modifications have been made to improve gasoline mileage. The Corvair is judged to be a satisfactory car for those to whom lack of leg room in the rear and difficulty of getting in and out are not considered serious disadvantages.

In order to improve gasoline economy, on which there were many complaints last year, a manual choke has been substituted for the automatic choke, the rear axle ratio has been reduced from 3.55 to 1 to 3.27 to 1, and a heater which does not burn gasoline has been made available (at \$17.25 less than the gasoline burning heater). Piston displacement has been increased a little, from 140 to 145 cubic inches. The faults described last year of insufficient leg room in the rear and the difficulty of getting in and out of the car, particularly for older people, still exist, however.

Headroom in the rear was insufficient for tall people. Moving the spare tire from the front compartment to the engine compartment has increased the luggage space available in the front, but reduced the storage-bin space available behind the rear seat so that the total luggage space, 15.8 cubic feet, remains the same. (It is about 35 percent less than that on most of the other compacts.) The direct-air heater, in which the air is directed to the front and rear seat passengers' feet, functioned well and appeared to have ample capacity in zero degree weather with wind velocity of 30 to 35 miles per hour.

The rear-mounted aluminum air-cooled engine has worked out well in use; however, a weakness of this arrangement is the location of the gasoline tank close to the driver, which might present more than the normal degree of fire hazard in the event of a collision. Signal lights instead of the

more desirable meters were used for generator and oil pressure.

Prices

The model tested by Consumers' Research was the 700 *Deluxe* 4-door sedan with automatic transmission and 3.55 to 1 rear axle ratio.

"Posted price," \$2396.80, itemized as follows: Manufacturer's suggested list price, \$2039; direct-air heater and defroster, \$74.25; deluxe equipment, \$10.80; *Powerglide* automatic transmission, \$156.60; spare wheel lock, \$5.40; white sidewall tires, \$28.60; folding rear seat, \$26.90; transportation charge, \$55.25.

Riding and handling qualities

Riding quality was good on roads in good condition, and on moderately rough roads at speeds up to 55 miles per hour. The car cornered well and was easy to handle and park. The seats were

Corvair specifications

Taxable horsepower	28.4
Taxable weight, pounds	2380
Engine	
Type	6-cylinder, overhead valves, in rear
Piston displacement, cubic inches	145
Rated maximum horsepower at stated rpm.	80 at 4400 (98 at 4600 optional)
Compression ratio	8.0 to 1
Cooling system	Air-cooled
Chassis and body	
Type	Unit
Wheelbase, inches	108
Over-all length, inches	180
Width, inches	67
Height, inches	51.5
Tires	6.50 x 13
Rear axle ratio	3.27 to 1 (3.55 to 1, 3.89 to 1 optional)
Brake area, square inches	121
Turning diameter, feet	39.5
Minimum road clearance, inches	6
Trunk space, cubic feet	15.8
Other details	
Battery	12-volt 35-amp.-hr.
Gasoline tank capacity, gallons	14
Type of gasoline required	Regular
Curb weight, pounds	2465

judged not to be as comfortable as those of the *Falcon*. This car was not "nose heavy" on emergency stops.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h.	20 sec.
20 to 50 m.p.h.	11.5 sec.
40 to 60 m.p.h.	12 sec.

Better acceleration than that of the *Falcon* which had 3.1 to 1 rear axle ratio, and judged ample for most drivers. Those who want improved acceleration can have the optional power pack installed (\$26.90) which increases rated horsepower to 98 (with some loss in gasoline economy).

Instrument errors

Speedometer error at 30 miles per hour, 4 percent

fast; at 50 miles per hour, 6 percent fast. Odometer was approximately 3 percent fast.

Gasoline mileage

At a constant speed of 50 miles per hour, the first car tested gave 25.5 miles per gallon. A second car of this make and model tested gave 22.5 miles per gallon. In city driving, mileage of the first car ranged from 20 to 23 miles per gallon.

Brakes

Service brakes were satisfactory. Parking brake was of the hand-operated, lever type with trigger release in the handle located to the left of the steering column (a good arrangement). The parking brake must be kept in adjustment, as the automatic transmission has no park position.

Ford Falcon



A very good car, with only minor changes from last year. Its plain, smooth functional design, free of unnecessary projections, bulges, and gingerbread, was well received by the public. Sales of the 1960 model were the highest* of any of the 1960 compacts. Those who want better acceleration at the expense of some loss in miles per gallon of gasoline should specify the 3.5 to 1 rear axle ratio (no extra charge) or the optional 101-horsepower engine (\$37.40 extra).

THE *Falcon* was relatively easy to enter and leave for those people who are young and not too tall. Leg room was adequate. Headroom was adequate in the front but not in the rear, for tall persons wearing hats. The shift lever is located on the steering post, an arrangement that permits three persons to sit in the front seat, but the center passenger's comfort would be impaired by the fairly high floor tunnel. Hood and fenders were free of the objectionable sharp ornaments still found on a few cars of recent manufacture. A larger rear-view mirror would be desirable. Signal lights were used instead of the more desirable meters for generator and oil pressure.

Prices

The model tested by Consumers' Research was a 2-door sedan with manual transmission and 3.1 to 1 rear axle ratio.

"Posted price," \$2039.65, itemized as follows: Manufacturer's suggested list price, \$1912 (4-door sedan is \$62 extra); heater and defroster, \$73.40; transportation charge, \$54.25.

Riding and handling qualities

At speeds up to 55 miles per hour on ordinary and moderately rough roads, riding quality was very good. The car cornered well with a minimum of body sway. Seats were very comfortable.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h., through gears	25 sec.
20 to 50 m.p.h., high gear	15 sec.
40 to 60 m.p.h., high gear	17.5 sec.

* If all Rambler sales, which include the Rambler American, Rambler, and Rambler Ambassador, are grouped together, their total sales would be somewhat less than those of the *Falcon*.

The *Falcon* was noticeably slower in acceleration than the other 1961 compact cars tested to date. With a full passenger and luggage load, the *Falcon* did not show the acceleration on hills and in attempts to pass cars on turnpikes that some drivers expect even of low-powered cars. The car should not be criticized for this, for Ford appears to be aiming at getting really good gasoline economy by using a low (3.1 to 1) rear axle ratio, and consumers should understand that fast acceleration and good economy in use of gasoline simply do not go together in a car of the size and weight that most Americans prefer. The optional 3.5 to 1 ratio should give much better acceleration, especially on hills, at the expense of about 10 to 15 percent fewer miles per gallon.

Instrument errors

Speedometer error at 30 miles per hour, 3 percent fast; at 50 miles per hour, 6 percent fast. Odometer was approximately 3 percent fast.

Gasoline mileage

At a constant speed of 50 miles per hour, the *Falcon* turned in a very creditable 29.5 miles per gallon, well above that afforded by most of the other "compact" cars tested so far by Consumers' Research. A second car tested gave 28.5 miles per gallon.



Another newcomer in the field of compact cars is the Oldsmobile F-85. It is judged about equal to the Buick Special and sells at the same price. The F-85, however, is not quite as economical in use of gasoline as the Buick Special.

The F-85 uses the same basic frame assembly and a closely similar aluminum V-8 engine as the Buick Special, but has a somewhat different body styling. (The body shells of both the F-85 and the Buick Special are modifications of the basic Corvair body.)

The transmission hump in the front compartment was low enough that three people could sit in the front seat in fair comfort, making the Oldsmobile F-85 a 6-passenger car. The low height of the car made it difficult to enter, requiring

Brakes

Service brakes were of the self-adjusting type, and were satisfactory, with only slight nose dip in emergency stops. The parking brake, located at the left of the steering column, was of the hand-operated pull-out type released by turning (judged preferable to the regular "step-on" type).

Falcon specifications

Taxable horsepower	29.4
Taxable weight, pounds (4-door sedan)	2290
Engine	
Type	6-in-line
Piston displacement, cubic inches	144 (170 optional)
Rated maximum horsepower at stated rpm	85 at 4200 (101 at 4400 optional)
Compression ratio	8.7 to 1
Cooling system capacity with heater, quarts	9.3
Chassis and body	
Type	Unit
Wheelbase, inches	109.5
Over-all length, inches	181
Width, inches	70.5
Height, inches	54.5
Tires	6.00 x 13
Rear axle ratio	3.10 to 1 (3.5 to 1 optional)
Brake area, square inches	114.3
Turning diameter, feet	38.3
Minimum road clearance, inches	5.9
Trunk space, cubic feet	23.7
Other details	
Battery	12-volt 40-amp.-hr.
Gasoline tank capacity, gallons	14
Type of gasoline recommended	Regular
Curb weight, pounds (4-door sedan)	2420

Oldsmobile F-85

some extra effort for tall persons. Leg room was adequate, and headroom was adequate in the front, but not in the rear, for tall persons not wearing hats. Performance of heater and defroster was satisfactory.

Disadvantages

Signal lights instead of the more desirable meters were used for generator, oil pressure, and temperature. A larger rear-view mirror would be desirable. The spare tire was located flat on the trunk floor; in this position, it is inconvenient to remove the tire from a loaded trunk.

Prices

The car tested by Consumers' Research was a 4-door standard sedan with automatic transmission and a 3.23 to 1 rear axle ratio.

"Posted price," \$2786.72, itemized as follows: Manufacturer's suggested selling price, \$2384 (deluxe model is \$135 extra); automatic transmission, \$189; heater and defroster, \$74.24; white sidewall tires, \$29.75; foam-rubber front seat, \$9.68; exterior body molding, \$29.05; transportation charge, \$71. The price of the *F-85* is considered high for a car of its type. Its selling price, which is the same as the *Buick Special*, is about \$75 above that of the regular-size lowest-priced *Ford*, *Chevrolet*, and *Plymouth*, and almost \$400 above that of the *Falcon* and *Valiant*.

Riding and handling qualities

Riding quality was good but car motion was judged not quite as smooth as the *Buick Special* at high speeds. The car handled well on winding, hilly roads, cornering without appreciable leaning of the body on turns. Power steering was judged unnecessary for most drivers, although some women drivers might find it desirable to aid in parking. Automatic transmission performed satisfactorily, except for a slight jerkiness of action in shifting. Seats were comfortable, and internal noise was low.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h. 14.5 sec.

20 to 50 m.p.h. 8 sec.

40 to 60 m.p.h. 8 sec.

These acceleration times were practically identical with those of the *Buick Special* and were judged more than adequate for almost any driver.

Instrument errors

Speedometer was 3 percent fast at 30 miles per hour, 5 percent fast at 50 miles per hour. Odometer was approximately 2 percent fast.

Valiant

A good car, which could be improved by closer attention to details of workmanship and finish. Though the *Valiant* is less expensive, by about \$50, than the *Lancer*, there was, in our opinion, little to choose between the two cars.

ESSENTIALLY the same as last year's *Valiant*.

Gasoline mileage

At a constant speed of 50 miles per hour, the car gave 21.5 miles per gallon or about 10 percent less than the *Buick Special*; the difference may have been due in part to the higher numerical axle ratio of the *F-85* (3.23 to 1 as against 3.08 to 1), and differences in the engine. In city driving, gasoline mileage ranged from 18 to 20.5 miles per gallon.

Brakes

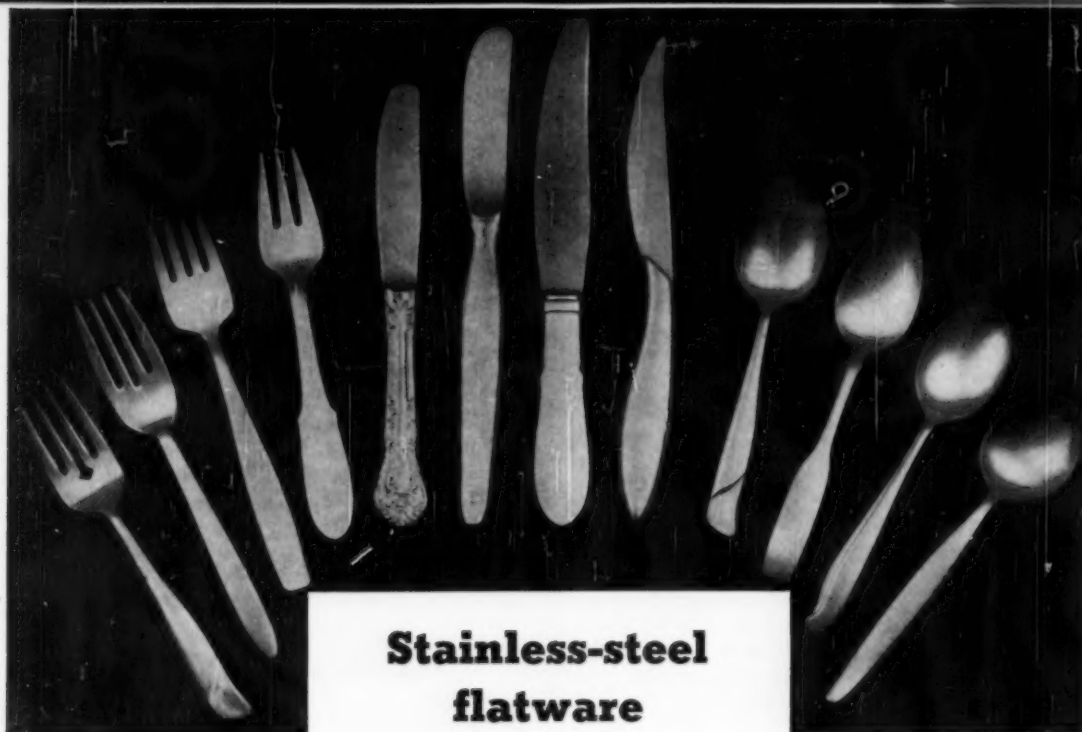
Braking quality was satisfactory, with only very slight nose dip on emergency stops. Engine braking was adequate when the car was descending hills. The parking brake was operated by an "L"-type lever located to the right of the steering wheel and turned through about 90 degrees to release (judged preferable to the regular "step-on" pedal-operated type).

Oldsmobile F-85 specifications

Taxable horsepower	39.2
Taxable weight, pounds	2566
Engine	
Type	V-8, overhead valves, aluminum
Piston displacement, cubic inches	215
Rated maximum horsepower at stated rpm.	155 at 4800
Compression ratio	8.75 to 1
Cooling system capacity with heater, quarts	12.5
Chassis and body	
Type	Unit
Wheelbase, inches	112
Over-all length, inches	188
Width, inches	71.5
Height, inches	52.5
Tires	6.50 x 13
Rear axle ratio	3.07 to 1 (3.23 to 1, automatic)
Brake area, square inches	127
Turning diameter, feet	37
Minimum road clearance, inches	4.9
Trunk space, cubic feet	25.4
Other details	
Battery	12-volt 40-amp.-hr.
Gasoline tank capacity, gallons	16
Gasoline recommended	Regular
Curb weight, pounds	2695



This car is first cousin to the *Lancer* which, although 5 inches longer overall, has the same interior body dimensions. With the floor shift lever of the manual transmission, use of the front seat capacity was limited to two passengers, making the *Valiant* with standard transmission a five-
(Concluded on page 21)



Stainless-steel flatware

Much of it looks like silver, costs less than sterling.

Stainless-steel flatware will not tarnish. But some brands are of inferior quality. Here are things worth knowing when you buy.

In recent years, stainless-steel flatware has become increasingly popular. In many homes it has replaced plated silverware for everyday use, and with young brides it is now the leading choice, for good stainless steel has definite advantages over other metals and alloys, aside from its lower price compared with sterling.

What is stainless steel?

Stainless steel is an alloy or mixture of metals, usually containing varying percentages of carbon steel, chromium, and nickel, plus smaller quantities of other metals. It is "solid," like sterling, not plated. Better grades of stainless steel will not discolor or rust under normal conditions. Stainless-steel flatware will not acquire a coating of tarnish as silver does, and so does not require regular or frequent polishing.

Since stainless-steel flatware is made in a variety of compositions, it is important to buy with care. About 18 percent chromium and 8 percent nickel give a stainless steel with good corrosion resistance and other desirable physical properties. Unfortunately, it is not always possible to recog-

nize good quality from appearance or from the name of the maker; actual testing under use conditions or in the laboratory is the only way to be sure of good quality.

Good stainless-steel flatware will give many years of service with good appearance.

Four finishes and a multitude of patterns

Stainless-steel flatware comes in four finishes. Two are reflective finishes, one brighter than the other, and two are relatively dull finishes, one a so-called satin finish and the other a dull finish. The highly buffed finish will resist stain more readily, while the dull finishes will show scratches less. The dull finishes most nearly resemble silver in appearance.

Stainless flatware comes in a multitude of patterns, from simple lines to those having considerable ornamentation. Selection of pattern is primarily a matter of personal taste.

Construction

Good stainless-steel flatware is properly "graded," that is, thicker at the shank and thinned out in the bowls and handles to give a pleasing appear-

ance and balance. Inexpensive stainless flatware has the same thickness throughout.

The edges of each piece should be well rounded, and the shanks of forks and spoons should be strong enough to resist bending due to the pressure applied on the tines of a fork or bowl of a spoon in use at the table. Knife blades should be hard, yet not so hard as to be brittle and hence likely to break in use.

Price

Stainless-steel flatware is sold over a wide range of prices beginning as low as 75 cents to more than \$15 for a five-piece setting. The higher-priced brands are actually priced higher than good silver plate and almost as high as some sterling. As with plated ware and sterling, stainless-steel flatware can be bought by the piece or in settings of four, five, or six pieces. Inexpensive stainless usually comes in packages containing six or more four-piece place settings.

The mere fact that the price of a given brand may be high is no assurance that the workmanship or quality is good. For example, prices for brands which warranted an *A* rating, on the basis of CR's tests, ranged from 45 cents to \$1.75 per piece of flatware (average, \$1.18). Those brands in the *B* group fell in the range of 34 cents to \$1.51 (average, 93 cents); and in the *C* group, from 17 cents to \$3.25 (average, 76 cents). Several brands in the *A-Recommended* group were lower in price than some of the brands that performed only fairly well in CR's tests.

Ratings

The following ratings are based primarily on the ability of each brand of flatware to resist scratching and staining, and upon resistance of the knife blade to corrosion (rusting). Strength of shanks, hardness of the knife blades, and workmanship of



Spoon at the top illustrates example of grading—thickness of handle tapers down to merge with the bowl. Spoon at the bottom lacks grading—handle and bowl are the same thickness.

all pieces were also factors in the ratings. Ratings were not affected by the weight of the pieces, but as the weight of a piece is to some extent an indication of the grade or quality of the flatware, it will be of interest to some consumers. The weights given in the listings are for a four-piece place setting: dinner fork, dinner knife, soup spoon, and teaspoon.

Price in parentheses in each listing is the average price per piece and is included for the reader's convenience in making price comparison.

A. Recommended

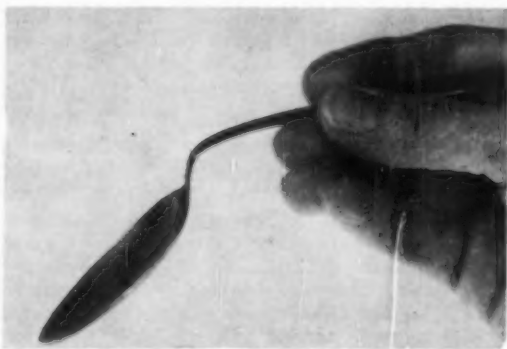
Cromargan, Line 3800 Fraser (Made in Germany; Georg Jensen, Inc., 667 Fifth Ave., New York 22) \$7 for 5-piece setting (\$1.40). Weight, 6 oz. Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength (resistance to bending) of shanks of forks and spoons, good. Workmanship and finish were good.

International Today (The International Silver Co., Meriden, Conn.) \$6.95 for 4-piece setting (\$1.75). Weight, 6½ oz. Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Oneida Ltd. (Oneida Ltd. Silversmiths) \$2.25 for 5-piece setting (45c). Weight, 5 oz. Resistance to scratching, poor; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Oneidacraft Paul Revere (Oneida Ltd. Silversmiths, Oneida, N.Y.) \$29.95 for 24-piece set (\$1.25). Weight, 6¼ oz. Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good. Other patterns of the same ware are *Vista* and *Shoreline*.

Scientific Danube (Made in Western Germany; available from Scientific Silver Service Corp., 35-30 61 St., Woodside 77, N.Y.) \$8.45 for 5-piece setting (\$1.70). Weight, 6¼ oz. Resistance to scratching, fair; to corrosion, good; to staining, fair. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.



It took relatively little force to make the above spoon bend at the shank. This brand lacked grading and the metal was thin.

Tradition Fiamma (Sears-Roebuck's Cat. No. 4-49209C or 4-49009C) \$28.50, plus postage, for a 24-piece set (\$1.20). Weight, 5½ oz. Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Tradition Simplicity (Sears-Roebuck's Cat. No. 4-49080) \$14.97, plus postage, for 24-piece set (63c). Weight, 5½ oz. Resistance to scratching, good; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good. Other patterns of the same ware are *Montego*, *Plaza*, and *Cadillac*. By far the best value of those tested.

Wallace Bright Star (Wallace Silversmiths, Wallingford, Conn.) \$5.25 for 5-piece setting (\$1.05). Weight, 6 oz. Resistance to scratching, good; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, fair. Workmanship and finish were good.

Wallace Fleetline (Wallace Silversmiths) \$5.95 for 5-piece setting (\$1.19). Weight, 6 oz. Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good. Other patterns of the same ware are *Star Crest*, *Poise*, and *Slant*.

B. Intermediate

Americraft Tango (Made by Gorham; distributed by Scientific Silver Service Corp.) \$5.30 for 5-piece setting (\$1.06). Weight, 6¼ oz. Resistance to scratching, fair; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Amulet (Made in Japan; Montgomery Ward's Cat. No. 86-5394) \$7.95, plus postage, for 24-piece set (34c). Weight, 7¼ oz. Resistance to scratching, poor; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Arnbe, Reed and Barton Sonata (Reed & Barton; distributed by Scientific Silver Service Corp.) \$6.55 for 5-piece setting (\$1.31). Weight, 7 oz. Resistance to scratching, fair; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Continental Consul (Made in Bavaria, West Germany; distributed by Continental Stainless Corp., 25-130 61 St., Woodside 77, N.Y.) \$6.70 for 5-piece setting (\$1.34). Weight, 6½ oz. Resistance to scratching, fair; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Ekco Metropolitan (Ekco-Flint Div., Ekco Products Co., Chicago 39) \$1.86 for 5-piece setting (37c). Weight, 5 oz. Not graded (see text). Resistance to scratching, fair; to corrosion, good; to staining, good. Hardness of knife blade, low. Strength of shanks, good. Workmanship and finish were satisfactory.



Dark spots are rust which occurred on several brands of stainless-steel flatware, in the course of the tests.

International Silco (The International Silver Co., Meriden, Conn.) \$9.25 for 24-piece set (39c); service for six. Weight, 4¾ oz. Not graded. Resistance to scratching, poor; to corrosion, good; to staining, good. Hardness of knife blade, slightly low. Strength of shanks, fair. Workmanship and finish were satisfactory. Other patterns of the same ware are *Prevue* and *Mardi Gras*.

Oneidacraft Accent (Oneida Ltd. Silversmiths) \$24.95 for 24-piece set (\$1.04). Weight, 6 oz. Resistance to scratching, fair; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory, except low at tip. Strength of shanks, fair. Workmanship and finish were good. Other patterns of the same ware are *Taper*, *New Shasta*, and *Profile*.

Rebcraft Sabrina (Reed & Barton; distributed by Scientific Silver Service Corp.) \$7.55 for 5-piece setting (\$1.51). Weight, 5¾ oz. Resistance to scratching, fair; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good. Another pattern of the same ware is *Style*.

Scientific Stainless Rio (Scientific Silver Service Corp.) \$5.05 for 5-piece setting (\$1.01). Weight, 5½ oz. Resistance to scratching, poor; to corrosion, good; to staining, good. Hardness of knife blade, satisfactory, except low at tip. Strength of shanks, fair. Workmanship and finish were good.

C. Not Recommended

Autumn Wheat (Made in Japan; Montgomery Ward's Cat. No. 86-5240) \$9.44, plus postage, for 24-piece set (40c). Weight, 6¾ oz. Resistance to scratching, poor; to corrosion, poor; to staining, fair. Hardness of knife blade, low. Strength of shanks, good. Workmanship and finish were good.

Breeze (Montgomery Ward's Cat. No. 86-5360) \$3.95, plus postage, for 24-piece set (17c). Weight, 4¾ oz. Not graded. Resistance to scratching, poor; to corrosion, poor; to staining, good. Hardness of knife blade, low. Strength of shanks, low. Workmanship and finish were judged to be fair.

Canute (Made in Denmark; Georg Jensen, Inc.) \$16.25 for 5-piece setting (\$3.25). Weight, 8¼ oz. Resistance to scratching, poor; to corrosion, poor; to staining, good. Hardness of knife blade, slightly low. Strength of shanks, good. Workmanship and finish were good.

Grape (Made in Japan; Montgomery Ward's Cat. No. 8-5265) \$5.95, plus postage, for 24-piece set (25c).

Weight, 6 oz. Resistance to scratching, poor; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Majestic Danish Contemporary (Made in Japan; distributed by The Majestic Silver Co., 241 Wolcott St., New Haven 6, Conn.) \$15.74 for 24-piece set (66c). Weight, 7¾ oz. Resistance to scratching, poor; to corrosion, poor; to staining, good. Hardness of knife blade, satisfactory. Strength of shanks, good. Workmanship and finish were good.

Majestic Norwich (The Majestic Silver Co.) \$6.20 for 16-piece set (39c). Weight, 5¾ oz. Not graded.

Resistance to scratching, poor; to corrosion, poor; to staining, fair. Hardness of knife blade, low. Strength of shanks, low. Workmanship and finish were fair. Other patterns of the same ware include *Milford*, *Rose Bouquet*, and *Woodbridge*.

Tradition Princess Margaret (Made in Japan; distributed by Imperial International Corp., Cutlery Guild, Ltd., New York 19; Sears-Roebuck's Cat. No. 4-49606) \$4.67, plus postage, for 24-piece set (20c). Weight, 5½ oz. Resistance to scratching, fair; to corrosion, poor; to staining, fair. Hardness of knife blade, satisfactory. Strength of shanks, fair. Workmanship and finish were fair.

Four 1961 compact cars

(Continued from page 17)

passenger car. The car was relatively easy to enter in the rear but somewhat difficult in the front. Leg room, hip room, and headroom were satisfactory, and seats were comfortable. Heater and defroster were satisfactory but somewhat noisy on the high-speed setting. A "power pack," claimed to increase the rated horsepower from 101 to 148, is available at extra cost. (Amount of the extra charge was not available to dealer, as this was written.)

Disadvantages

A signal light instead of a gauge was used to indicate oil pressure. The spare tire was located horizontally in a well in the trunk. A greater area of coverage of the windshield wipers and a larger rear-view mirror would be desirable.

Prices

The model tested by Consumers' Research was a V-200 4-door sedan with standard (manual shift) transmission and 3.55 to 1 rear axle ratio.

"Posted price," \$2330, itemized as follows: Manufacturer's suggested list price, \$2110; heater and defroster, \$74.40; radio, \$58.50; white sidewall tires, \$29.10; transportation charge, \$58.

Riding and handling qualities

At speeds up to 60 miles per hour, riding quality was good (the *Valiant*, like the larger Chrysler-built cars, used torsion bars at the front). Cornering was very good, with a minimum of leaning of the body on turns.

Road tests of accelerating ability

Acceleration times were:

0 to 60 m.p.h., through all gears	20.5 sec.
20 to 50 m.p.h., high gear	13.0 sec.
40 to 60 m.p.h., high gear	9.5 sec.

Although not as fast as the *Buick Special* and *Oldsmobile F-85*, we consider that the *Valiant's* accelerating ability, which was much faster than the *Falcon*, will be ample for most drivers.

Instrument errors

Speedometer was about 5 percent fast at 30 miles per hour, 7 percent fast at 50 miles per hour. Odometer was approximately 5 percent fast.

Gasoline mileage

At a constant speed of 50 miles per hour, the first *Valiant* tested gave 28 miles per gallon, but a second car with the same equipment gave 25 miles per gallon (such differences are to be expected, between cars of the same make, with the same equipment). In city driving, gasoline mileage ranged from 21 to 24 miles per gallon.

Brakes

Service brakes were satisfactory. The parking brake was of the "step-on" type, released by a pull-out hand-operated control under the instrument panel to the left of the steering column. It was not considered as satisfactory as the hand-operated pull-type brake, for use in an emergency.

Valiant specifications

Taxable horsepower	27.7
Taxable weight, pounds	2500
Engine	
Type	6-in-line, overhead valves
Piston displacement, cubic inches	170
Rated maximum horsepower at stated rpm	101 at 4400 (148 at 5200 optional)
Compression ratio	8.2 to 1
Cooling system capacity with heater, quarts	12
Chassis and body	
Type	Unit
Wheelbase, inches	105.5
Over-all length, inches	184
Width, inches	70.5
Height, inches	53.3
Tires	6.50 x 13
Rear axle ratio	3.55 to 1 (3.23 to 1, automatic)
Brake area, square inches	139
Turning diameter, feet	37.8
Minimum road clearance, inches	5.4
Trunk space, cubic feet	24.9
Other details	
Battery	12-volt 50-amp. hr.
Gasoline tank capacity, gallons	13
Gasoline recommended	Regular
Curb weight, pounds	2750

Automatic record changers

Eight changers, one manual player, and a new stylus

pressure gauge are discussed in this article

THE first and a very important component in a high-fidelity system is the mechanism used to rotate the record and enable the stylus to translate minute mechanical motions representing the sound recorded in the grooves into sound. This machine may be either a single-play turntable with a separate tone arm or a mechanism that plays automatically one record after another.

No matter which device is chosen for the job, it should rotate the record correctly at the same speed at which the music was recorded, and should contribute the least possible noise of its own to the reproduced sound.

Herein lie the main differences between a record changer and a manual turntable. Generally, the more complex the driving mechanism, the more noise will be found in the sound coming through the loud-speaker. Record changers, which are inherently complex mechanisms, must drop a record, move the tone arm to its starting point, drop it gently on the record, and at the end of the record the changer must trigger itself to repeat this cycle, all without aid from the listener. The mechanism needed to produce this automation may contribute to the unwanted low-frequency noise known as rumble heard when a record is being played. Rumble is caused by mechanical vibrations in the turntable mechanism that are translated by the cartridge and amplified into undesirable noise in the sound output.

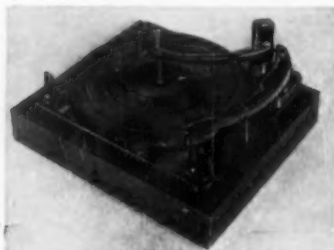
Prior to the advent of stereophonic sound, mechanical causes of rumble could be put up with, to a certain extent, because the monophonic pickup cartridge was relatively insensitive to vibrations in a vertical direction. Since most rumble in a record-playing device is the result of minute

vertical vibratory movements, very little got through to the loud-speaker when a monophonic pickup was used. However, the new stereo cartridges, which by their very mode of operation are highly responsive to vertical vibrations, imposed more exacting requirements on turntable design.

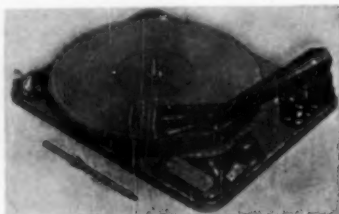
Other considerations in changer or turntable design are wow, flutter, and uneven speed control. Wow is the objectionable effect in the reproduced sound that results from a slow variation of turntable speed, while flutter is a high speed or frequent variation. Turntable speed is an important design factor, for a record that turns a little too slowly or too fast will cause the pitch of the recorded sound to be changed from the original.

The best way to play records is with a good single-play turntable. This machine, since it has only one job to do (that is, rotate the record constantly at correct speed), is usually a simple mechanism. The drive system is usually such that motor vibrations are well isolated from the turntable and thus from the pickup. The turntable is usually heavy and well balanced, and these characteristics favor a minimum of wow and flutter. Even though the motor has only to rotate the turntable, the motor is normally of a more substantial design than that used with record changers. Use of a manual turntable also allows one to choose a good separate tone arm, whereas there is no choice with a changer. Design of the tone arm is important to fine sounding record reproduction; correct mounting of this arm in relation to the turntable is also very important for good reproduction and long life of records.

All of the changers tested showed little tendencies to produce wow; the *Dual 1006*, *Garrard Type*



Collaro TC-99 Constellation



Dual 1006 Custom



Garrard Type A

A, Collaro TC-99, Glaser-Steers GS-77, and Webcor 1031-21 performed best in this respect. Flutter also was low, with the five changers named showing the best performance.

Audible rumble was found on all the changers; however, the rumble exhibited by *Dual 1006*, *Garrard Type A* and the *Collaro TC-99* was at a very low level. Rumble was judged by playing a record that had soft passages. The sound was amplified through a high-quality amplifier (its tone controls were set for most pleasing reproduction, with good low-frequency response) and reproduced through a *Klipschorn* loud-speaker system. This speaker system is well known for its outstanding capabilities in reproducing the lower recorded frequencies. An unmodulated groove (one without any sound recorded) was played also, for comparison purposes. It was judged that with an average speaker system (one with little response below 50 cycles per second) the rumble produced by all the changers would not be objectionable. Only the *Dual 1006*, the *Garrard Type A*, and the *Collaro TC-99* can be recommended for use with extended-bass loud-speakers.

The motor that powers a record changer has a double job to do. It must rotate the record, and at the same time it must also supply power to the mechanism that changes the records. Moreover, it must turn not only one record but in some cases as many as 12 records. Perhaps it is compensation for this extra load that accounts for the fact that most of the record changers produced playing speeds that were somewhat faster than rated speed. The rotational speeds were checked at controlled voltage with a stroboscope, and at loads of a single record, and the maximum number of records, speeds were for the most part slightly fast; the slight rise in pitch caused by an excess speed was judged not objectionable to most listeners. A very critical listener might object to the slightly excessive speed of some of the faster-running turntables, but very likely so critical a listener would not seriously consider buying a record changer in the first place.

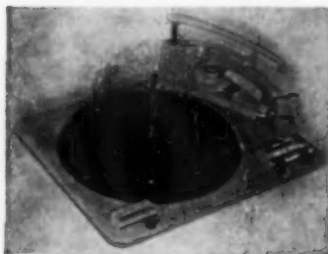
The tone arms supplied with the changers tested were of varying designs and pickups mounted in them were found to track the record grooves reasonably well. No low-frequency arm resonances in the audible range were noted.

Although the various arms were easily adjustable to various stylus pressures, some exhibited a condition that was common on most changers a few years ago. When the stylus pressure was set at the desired point with one record on the turntable, the pressure was significantly higher for the top record of a stack of records. A low stylus pressure is necessary for good reproduction of stereo records as well as for long life of record and stylus. The *Garrard Type A*, *Dual 1006*, and *Webcor 1031-21* had arms that gave very close to the same stylus pressure for a single record and the top record of a stack. With the *Collaro TC-99* arm, stylus pressure was almost doubled for the last record. Others increased by about two grams above the four or five grams used in the test.

The *Garrard Type A* changer uses an arm new to record changer design, though it is one that is becoming popular in design of separate arms. The *Garrard* arm is fully balanced (so-called dynamically balanced). This arm was found to operate well at a pressure of three grams (with a *Stanton 371* stereo cartridge).

All of the changers except the *Garrard Type A* used a change mechanism in the center spindle, along with a balancing arm over the record stack. The *Dual 1006* did not have a balancing arm. The *Garrard Type A* utilized a smooth bent center spindle and a pusher post similar to that used on older *Garrard* changers. All of the changers shut off after the last record was played when set for automatic operation.

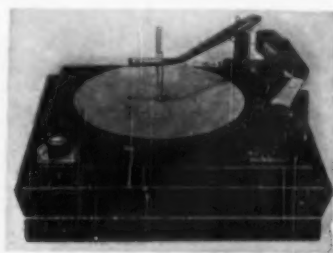
All of the changers listed were for use with stereo cartridges and were supplied with shielded phonograph cables with plugs attached, as well as a-c line cords leading to the motor. All had four-pole motors and all played at four speeds, 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45, and 78 revolutions per minute. The



Garrard RC210



Collaro TSC-640 Conquest



Glaser-Steers GS-77

mechanisms all worked smoothly, and controls were judged convenient to operate.

Prices are so-called net, those found at mail-order radio and phonograph supply dealers; they do not include shipping charges. Listings are in alphabetical order within the A- and B-rated groups. Ratings are for record changers alone, and do *not* imply a comparison between quality and performance of manual turntable-and-separate-arm combinations and record changers.

Automatic record changers

A. Recommended

Dual 1006 Custom (United Audio Products, 21 W. 18 St., New York 11) \$79.95, less cartridge; 45 rpm. spindle, \$4.80. Made in West Germany.

Description: Four-speed combination manual player-record changer, 10 $\frac{3}{4}$ x 13 in., 4 $\frac{3}{4}$ in. above mounting board, 3 in. below. 10 $\frac{3}{8}$ -in. diameter turntable, weight 3 lb. 11 oz. Arm, 7 $\frac{3}{4}$ in. long, made of plastic. No plug-in shell, but has removable cartridge clip. Stylus pressure adjusted by knob under rear of arm. Changer has built-in stylus pressure gauge graduated in grams. Plays 7-, 10-, and 12-in. records of same speed intermixed in any order. Maximum number of records, 10. Records can be played manually if desired.

Performance: Speed at 33 $\frac{1}{3}$ rpm. setting with one record, very slightly fast; with 10 records, correct. Wow and flutter, very low. Rumble, very low. Stylus pressure varied from 4 grams with one record to 5 grams with 10 records on turntable. Indexing and tone arm were unique in that the arm moved over the surface of the record on small neoprene wheels until the edge of the record was reached. The arm rises and the wheels retract, and then the arm descends gently onto the record.

Garrard, Type A (Distributed by British Industries, Inc., 80 Shore Road, Port Washington, N.Y.) \$69.50, without cartridge; 45 rpm. spindle, \$3.80 extra. Made in England.

Description: Four-speed automatic record changer. Can be used as a single-play manual turntable by substituting a short spindle (furnished). 15 x 12 $\frac{1}{4}$ in. plus 1 $\frac{1}{4}$ in. extra at rear for arm clearance, 5 $\frac{3}{4}$ in. above mounting board, 2 $\frac{5}{8}$ in. below. 10 $\frac{1}{2}$ -in. diameter turntable, weight 5 lb. 8 oz., non-magnetic. Heavy top section of turntable rests on a thin foam sheet which covers inner turntable. Arm, 8 $\frac{1}{4}$ in. long, made of metal with plastic plug-in cartridge shell. Stylus pressure adjusted by sliding knob under arm. Arm is balanced separately by

sliding counterweight at rear. Does not play intermixed record sizes. Will play only 10- and 12-in. records automatically on standard spindle. (7-in. 45 rpm. records can be played automatically with optional accessory spindle.) Maximum number of records, 6.

Performance: Speed at 33 $\frac{1}{3}$ rpm. setting with one record, slightly fast; with 6 records, essentially correct. Wow and flutter, very low. Rumble, very low. Stylus pressure remained constant over full load of records (desirable).

Collaro TC-99 Constellation (Distributed by Rockbar Corp., 650 Halstead Ave., Mamaroneck, N.Y.) \$58.31, less cartridge; 45 rpm. spindle, \$3.23 extra. Made in England.

Description: Four-speed automatic record changer, 12 x 13 $\frac{1}{2}$ in., 5 in. above mounting board, 2 $\frac{3}{4}$ in. below. 11 $\frac{5}{8}$ -in. diameter turntable, weight 5 lb. 5 oz., non-magnetic. Arm, 8 in. long (pivot to stylus), made of plastic. Plug-in shell for cartridge. Stylus pressure adjusted, by screwdriver, at top rear of arm (an inconvenient arrangement). Plays intermixed 7-, 10-, and 12-in. records of same speed. Maximum number of records, 10. Records can be played one at a time, manually, if desired.

Performance: Speed at 33 $\frac{1}{3}$ rpm. setting with one record, slightly fast; with 10 records, correct. Wow, very low; flutter, low. Rumble, very low. Stylus pressure increased from 5 grams with one record to 9 grams with 10 records on turntable. This machine is accordingly recommended for use as a changer only with about 5 records in a load.

B. Intermediate

Collaro TSC-640 Conquest (Distributed by Rockbar Corp.) \$37.73, less cartridge; 45 rpm. spindle, \$3.23. Made in England.

Description: Four-speed automatic record changer, 12 x 13 $\frac{1}{2}$ in., 5 in. above mounting board, 2 $\frac{3}{4}$ in. below. 9 $\frac{1}{2}$ -in. diameter steel turntable, weight 2 lb. 2 oz. Arm, 7 $\frac{3}{4}$ in. long, made of plastic. No removable pickup shell. Stylus pressure is adjusted by a screwdriver at the top rear of the arm (inconvenient). Plays intermixed 7-, 10-, and 12-in. records of the same speed when stacked with largest records on the bottom. Maximum number of records, 10. Records can be played manually if desired.

Performance: Speed at 33 $\frac{1}{3}$ rpm. setting with one record, substantially correct; with 10 records, somewhat slow. Wow and flutter, low. Rumble, low, but noticeable on soft musical passages. Stylus pressure increased from 5 grams for one record to 7 grams with 10 records.

Collaro TSC-740 Coronation (Distributed by Rockbar Corp.) \$41.65, less cartridge; 45 rpm. spindle, \$3.23. Made in England. This changer is essentially the same as the *Collaro TSC-640 Conquest*, except that it has a removable cartridge shell on the arm.

Garrard RC210 (Distributed by British Industries, Inc.) \$44.50, less cartridge; 45 rpm. spindle, \$3.80. Made in England.

Description: Four-speed record changer, 13 $\frac{1}{4}$ x 11 $\frac{1}{2}$ in., 5 in. above mounting board, 3 $\frac{1}{8}$ in. below. Minimum mounting dimensions, 14 $\frac{1}{4}$ x 12 $\frac{1}{4}$ in. 9 $\frac{1}{4}$ -in. diameter



The V-M 1587 and 1572 are the same except that the 1587 includes a base as shown.

turntable, weight 1 lb. 10 oz., made of steel. Arm, $7\frac{1}{2}$ in. long, made of metal with plastic plug-in cartridge shell. Stylus pressure is adjusted by knurled knob at the top rear of the arm. Plays intermixed records of 10- and 12-in. size of the same speed in any order. Change cycle is about 50% longer than on other changers tested. Maximum number of records, 8. Records can be played manually if desired.

Performance: Speed at $33\frac{1}{3}$ rpm. setting with one record, slightly fast; with 8 records, very slightly slow. Wow and flutter, low. Rumble, low, but noticeable on soft musical passages. Stylus pressure increased from 4 grams with one record to 6 grams with 8 records. Record does not drop flat during change cycle, a condition that may increase record wear.

Glaser-Steers GS-77 (Glaser-Steers Corp., 155 Oraton St., Newark 4, N.J.) \$59.50, less cartridge; 45 rpm. spindle, \$2.95. Made in U.S.A.

Description: Four-speed automatic record changer, $14 \times 12\frac{1}{2}$ in., $5\frac{1}{2}$ in. above mounting board, $3\frac{3}{16}$ in. below. 9-in. diameter turntable made of steel, weight 1 lb. 9 oz. Arm, $7\frac{1}{4}$ in. long, made of metal. Has removable cartridge clip. Stylus pressure adjusted by turning the knob under the arm. Plays intermixed 7-, 10-, and 12-in. records in any order. "Speedminder" position of control sets machine to play intermixed sizes and speeds automatically. All 7-in. records are played at 45 rpm., and 10- and 12-in. records are played at $33\frac{1}{3}$ rpm. Maximum number of records, 10. Can be played manually.

Performance: Speed at $33\frac{1}{3}$ rpm. setting with one record, somewhat fast; with 10 records, only slightly fast. Wow and flutter, low. Rumble, low, but noticeable on soft musical passages. Stylus pressure increased from 4 grams with one record to 6 grams with 10 records. This changer has the unique feature that the turntable stops rotating during the change cycle and begins to turn only when stylus is on the record.

Webcor 1031-21 (Webcor, Inc., Chicago) \$61.55, including Shure M7D stereo cartridge with diamond stylus; 45 rpm. spindle, \$2.94. Made in U.S.A.

Description: Four-speed automatic changer, $13\frac{1}{2} \times 13$ in., $5\frac{1}{2}$ in. above board, 3 in. below. 8-in. diameter turntable, weight 1 lb. 7 oz., made of steel with a thick rubber mat. Arm, $7\frac{1}{4}$ in. long, made of metal. No removable cartridge shell or clip. Stylus pressure adjustable by movable weight on the top rear of the arm. Plays intermixed 10- and 12-in. records, at $33\frac{1}{3}$ rpm. setting only. Maximum number of records, 10. Can be played manually.

Performance: Speed at $33\frac{1}{3}$ rpm. setting with one record, only slightly fast; with 10 records, only slightly fast. Wow and flutter, very low. Rumble was noticeable, and changer was noisy when running. Stylus pressure re-



Collaro TP-59
manual player



Garrard SPG-3 stylus pressure gauge

mained constant at 5-gram setting for one record or 10 records. Changer will play automatically 7-in. records only when speed control is set at 45 rpm.

V-M 1572 (V-M Corp., Benton Harbor, Mich.) \$40, less cartridge; 45 rpm. spindle, \$2.31. Made in U.S.A.

Description: Four-speed record changer, $12 \times 13\frac{1}{4}$ in., $5\frac{3}{4}$ in. above mounting board, $2\frac{5}{8}$ in. below. 11-in. diameter turntable, weight 1 lb. 11 oz. Arm, 7 in. long, made of metal, with metal plug-in shell for cartridge. Stylus pressure adjustable by moving spring holding a clip under the tone arm (an inconvenient method). Plays 10- and 12-in. records of same speed intermixed in any order. Maximum number of records, 10 12-in. or 12 10-in. Can be played manually.

Performance: Speed at $33\frac{1}{3}$ rpm. setting with one record, fast; with 10 records, slightly fast. Wow and flutter, low. Rumble was low. Stylus pressure increased from 6 grams with one record to 7.5 grams with 10 records. On-off switch caused loud "plop" in loud-speaker (undesirable).

Manual record player

B. Intermediate

Collaro TP-59 (Distributed by Rockbar Corp.) \$29.35, less cartridge. Made in England.

Description: Four-speed manual turntable and arm. $13\frac{1}{2} \times 12$ in. $9\frac{1}{2}$ -in. diameter turntable, weight 2 lb. 3 oz. Arm, $7\frac{1}{2}$ in. long, made of plastic with plastic plug-in cartridge shell. Stylus pressure adjusted by screw at the top rear of the arm (inconvenient). Player shuts off automatically at end of record, but arm does not return to rest.

Performance: Speed at $33\frac{1}{3}$ rpm. setting, substantially correct. Wow and flutter, low. Rumble, low, but noticeable on soft passages of music.

Stylus pressure gauge

A. Recommended

Garrard SPG-3 (Distributed by British Industries, Inc.) \$2.95. A clever balance device with dial graduated in $\frac{1}{2}$ -gram divisions. Can be recalibrated easily with a screwdriver and 5-gram weight supplied with the gauge. Gauge was found to be amply accurate for its intended use in setting stylus pressures.

Devices that help find the way in a dark room

(The beginning of this article is on page 2)

glowing time is desirable and, within certain limitations, can be provided by proper choice of the phosphorescent material.

Materials which reflect light

Another type of material, one that is now widely used in highway advertising signs, strips and stickers for automobile bumpers, and other similar uses, is dependent for its satisfactory performance wholly upon the immediate presence of an external source of light. A part of the light reaching the material is reflected by it so that those areas of a sign—the lettering, for example—on which the reflecting particles are present stand out at night against a non-reflecting background and can be easily seen and read, just as a cat's eyes are seen to reflect light from a flash lamp or auto headlamp. The paint used for some road marker strips and for signs contains as an essential element a myriad of minute spheres of glass or other transparent material that reflects some light over a wide angle (rather than in a directed beam seen only in one direction as would be the case if a coating made of flat mirror surfaces were used). With the multitude of tiny spheres, markings or lettering can be readily seen through a wide angle when they are illuminated by a car's headlights.

Radium-luminous materials

Another kind of material which shines in the dark is that often used on watches and clocks. A radium salt or other radioactive substance is a necessary constituent in such a phosphorescent paint. Watch and clock hands and dials, for example, on which radium-luminous materials are much used, can be seen for a long period of time because the small amount of radioactive materials in the paint continues to give off alpha or beta

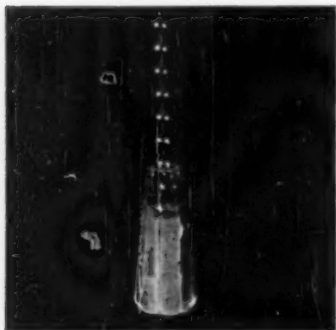
particles which cause the paint to phosphoresce and thus to be readily seen in the dark. Such a material is not dependent upon an external source of light for its activation although it does shine more brightly, for a time, when so exposed. Its glow will go on for years, even though it is never exposed to sunlight or other strong light.

Still another kind of material which is coming into wide use employs as one of its ingredients one of the many fluorescent compounds which have the characteristic of emitting visible light when exposed to invisible ultraviolet light. These compounds are now present in many articles we use everyday, in synthetic detergents, for example, to make a washed dress shirt or blouse appear a whiter white; in other clothing—those orangish-red sport shirts you saw last summer which seemed to glare right back at you; and in many highway signs where the added brightness produced in sunlight by the fluorescent material tends to make the sign more conspicuous, almost as though it contained a source of illumination.

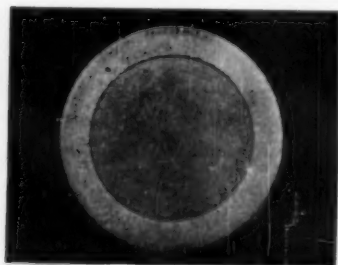
Electric night lights

For many years so-called "night lights" have been available which provide a very small amount of light for use in a darkened room. In a bedroom, for example, such a device will provide sufficient illumination to enable one to get about without stumbling over a chair or table and awakening another sleeper. Some persons find that the small light glowing in the room is comforting; others prefer a room which is completely dark and find even a dim light a mental barrier to sleep.

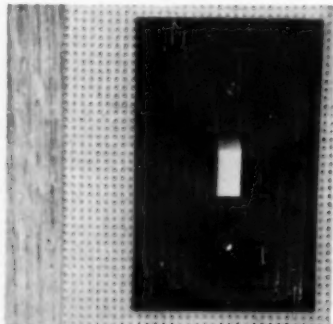
Usually, night-light devices are merely low-wattage coated-incandescent, fluorescent, or neon bulbs which are screwed into the usual lamp



One type of luminescent marker for a pull-chain.



Sylvania Panelocent Nite Lite



G.E. Lighted Push-Button A.C. Switch

socket or plugged into a wall receptacle. They are available in from 1- to 7½-watt sizes, although most people would find the latter too bright for use in a bedroom. (Such lamps were discussed in CONSUMER BULLETIN, March 1948.)

Very recently, Sylvania Lighting Products has put on the market a *Panelescent Nite Lite*, a disk 3¼ inches in diameter, which is plugged in a wall or baseboard receptacle. A layer of sensitive material in the round disk glows with a pale green light when electric current is passed through it. Sylvania introduced its *Panelescent* lighting in 1950 and has employed it in many devices of its manufacture since that time.

Consumers' Research tested the *Panelescent Nite Lite* and found it a very satisfactory solution to the night-light problem. Some may consider the kind of light emitted—a sort of eerie green—not to their liking, but the amount of light provided was adequate for the intended use in a bedroom or hallway of moderate size. Westinghouse and General Electric are offering similar lights, of square shape.

It is to be expected that all three firms will, in the not too distant future, offer large luminescent panels which function on similar principles to give white light, as a new form of home lighting.

A. Recommended

General Electric Lighted Push-Button A.C. Switch

General Electric Co., Providence, R.I.) \$1. A wall-type switch with single push button. Push for "on," then push again for "off." Small neon light mounted within button made switch easy to find in the dark; the finder light is on when the switch is "off." Installation is simplified by use of plug-in holes for connecting wires, requiring no wrapping of the wire around screw connectors. Good installation instructions are provided.

Sylvania Panelescent Nite Lite (Sylvania Lighting Products, 60 Boston St., Salem, Mass.) 98c. A disk, about 3¼ in. in diameter, with prongs at the rear for

plugging into a wall or other receptacle. A night light which provides useful weak illumination in a dark room. Claimed life, 30,000 to 40,000 hr. (about 4 yr. of continuous use); operating cost, less than 1c per year (0.02 watt).

GLOW TAPE

Rapco Glowing Tape (Rapco Products, Land Title Bldg., Philadelphia 10) 49c, plus 10c postage, for single roll, ¾ in. wide and 24 in. long. An adhesive-backed tape which glows in the dark for an hour or two following exposure to a source of strong light.

The particular situation in which a marker is to be used will usually determine one's choice of a type.

Electric night lights, which provide a low level of illumination, are suitable for use in a bedroom, hallway, or on stairways to help prevent accidental falls and enable one to find his way in the dark past chairs, tables, stands, or other objects.

Luminescent devices glow for a time after being exposed to light but provide practically no lighting effect. They are therefore best employed in a dark area to mark the specific position of objects, such as switches, outlets, stair risers, switch boxes, or low beams or pipes in a cellar on which one might strike one's head.

Reflecting materials, such as are used for road signs, auto-bumper markers, etc., shine in the dark only if an external source of light is present. They are thus of very little use in a dark house, although possibly helpful for someone carrying a flashlight.

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NOTE: Recent reprints from CONSUMER BULLETIN are listed on p. 23 of the Jan. '61 issue.

Repairing chipped porcelain enamel with epoxy-resin cements

HAVE you ever dropped a hard, heavy object into a sink, tub, or lavatory, or upon a gleaming new appliance and thereby chipped the porcelain enamel? The glass-like surface of porcelain enamel is a fine protective coating, but it is brittle and can be and often is chipped by accidents that may occur in any home. Once there is a break in the smooth porcelain, it is quite impossible for a home handyman to repair the surface and make it as good as new, because a real porcelain coating that looks exactly like the original vitrified (glass) coating could be made to adhere only by firing it at the high temperature needed to melt glass.

Numerous varnishes containing white pigments, or enamel-like products, have been offered to the public for repairing chipped porcelain. These will serve well enough where the surface remains dry. One product, *Porcelene*, was tried by Consumers' Research several years ago, and served fairly well, but failed after long exposure to water. *Porcelene* is available from Porcelene, Inc., Sheboygan, Wis., at \$1.50, postpaid, for a tube containing a little over one-half ounce. Until recently, however, Consumers' Research had not come across any repair material that seemed to stand much chance of lasting if exposed to much wear and constant contact with water, as is the bowl of a sink, lavatory, or wash basin, for example.

Within the last few years, something really new and different in the way of repair materials has become generally available. These are the epoxy-resin cements, and several firms have advertised epoxy-resin preparations for repairing chipped porcelain. An epoxy-resin cement has two fluid or pasty components that are brought together only when the product is to be used. Hardening results from a complex chemical action that occurs within a few hours after the two are mixed; there is no "drying" in the conventional sense of evaporation of moisture or of a solvent.

Seven different epoxy-resin cements were applied to freshly made small chipped holes, and strips of cement about $\frac{1}{2}$ inch wide and 3 to 4 inches long were placed across a portion of an old sink in which the glassy or vitreous coating had been worn away to expose the cast-iron base metal.

Whether or not the epoxy-resin cements worked well depended primarily on the condition of the surface being treated. If the area was thoroughly cleaned so that all rust was completely removed, the bond was good and durable; if not, the bond was weak and failure of the filled in area occurred.

The tests indicate that the coatings, when properly applied to very carefully cleaned surfaces, can be expected to resist normal wear and exposure to water for relatively long periods.

However, several of the patches which were nearly white at the start had become darker, due presumably to absorption of color from rusty water which had been allowed to stand over them. Several of the patches had small "pits" or other imperfections on their surfaces, but these were not present in any case in both of the two samples tried of each brand. We believe, therefore, that the pitting was not due to differences among the brands. Possibly air bubbles may have been trapped in some of the cements as they were applied.

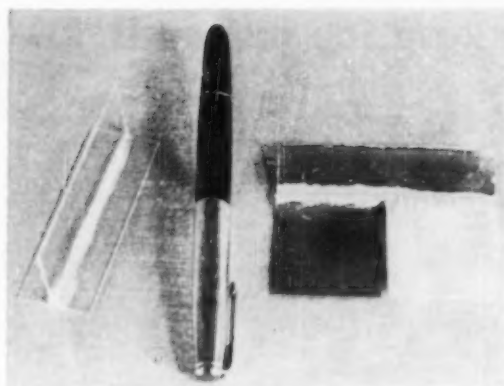
Other uses for epoxy-resin cements

The epoxy-resin cements have remarkable inherent strength, strong adhesion to a wide range of materials, and ability to fill spaces with a hard, tough mass, comparable in hardness and strength to one of the softer metals. The cements can be sanded or even machined under some circumstances, and have a wide variety of uses.

One staff member plugged a leak in an automobile radiator with an epoxy-resin cement, and the repair is still effective after four years' use of the car. Leaks in a gas line were successfully plugged. A screw which held a pipe clamp was anchored in a crevice of a stone wall (a difficult job, because of very limited bonding area, on which another type of cement had failed). A broken-off part of a fountain pen made of plastic was successfully replaced about a year ago, and it has stayed firmly in place. Leaks in water tanks and pipes under pressure have been successfully repaired. Broken off bits of earrings and other

A word of caution

Epoxy-resin cements must be handled with care at all times, and must not be left where children can have access to them. Some of the ingredients are markedly poisonous, and they can cause injury to the skin. Keep the resins, hardeners, and mixed cements off your skin if possible, and of course out of any contact with the eyes. If any material gets on the skin, wash it off at once with soap and water (not with a cleaning solvent of any kind).



Difficult jobs can now be accomplished with epoxy-resin cements. Left to right: glass to glass along a thin edge of one piece, repair of a broken fountain pen barrel, edge cementing of fabric to metal.

jewelry have been easily, quickly, and very cheaply held in place by use of epoxy cement.

The seven cements listed below are those that were tried on chipped porcelain; all were white or fairly light in color originally. Their usefulness is, of course, not limited to this application—which is extremely difficult for any cement. The products are listed alphabetically. (The figures given in parentheses in most listings after the prices and package sizes are the approximate costs *per ounce* of the mixed cement.)

A. Recommended*

Armstrong A-2 (Armstrong Products Co., Warsaw, Ind.) The Armstrong Products Co., which manufactures adhesives primarily for industrial uses, will send sample kits for \$1 each, postpaid. Enclose \$1 with a letter explaining the proposed use, and let the company send the formulation it considers best for your purpose. The A-2 formulation used in our tests happened to be light tan in color.

Boxer Epoxy, Formula EP-1000 (Union Laboratories, Inc., Morganville, N. J.) 89c for two tubes containing about $\frac{3}{4}$ oz. each of resin and hardener (59c). Contents of both tubes were of such stiff consistency as to make it very difficult to squeeze out the needed quantity, a circumstance which might lead to rupture of one or both tubes. Light tan in color.

Devcon 2-Ton (Devcon Corp., Danvers, Mass.) 98c for two tubes containing about $\frac{3}{4}$ oz. each of resin and hardener (65c). White.

Epoxy Weld, white (Traffic Control Laboratories, 25 Ship Ave., Medford 55, Mass.) 79c for resin and hardener sufficient to make about $\frac{1}{3}$ oz. of cement (\$2.37), in a plastic mixing bag which was judged practicable and

convenient only for "one-shot" use, in which all the cement would be used at one time. Other brands would be preferred where a portion of the product could be saved for future use. The brand is available with various pigments or fillers as white, clear, steel, or aluminum.

Kuhls' Elastic Epotex (H. B. Fred Kuhls, Third Ave. and 65 St., Brooklyn 20, N.Y.) \$4.20 for $\frac{1}{2}$ pt. each of resin and hardener in cans, total net weight, roughly $\frac{1}{2}$ lb. (53c). Light tan.

N2X Epoxy (Narmco Resins & Coatings Co., Costa Mesa, Calif.) 98c for two tubes containing about 1 oz. each of resin and hardener (49c). Light tan color.

Pox-Amide Porcelain Refinishing Kit (Poly-Pox, Ltd., 127 W. 26 St., New York 1) \$12.95 for kit containing *Pox-Amide Filler*, roughly 2 oz. of resin and hardener plus Part A, Part B, and a reducer (thinner) of a *Pox-Amide* spray material with a spray gun and aerosol propellant. The entire outfit was bought in response to a New York City newspaper advertisement which offered for \$9.95 the complete kit "plus FREE \$2.00 value Surface Patch Kit." The material was received more than 3 weeks after it was ordered, the promised "free" kit was not included, and no answer was received to a letter to the company asking them to send the missing kit. Although the *Pox-Amide Filler* worked as well as some other epoxy-resin cements, Consumers' Research cannot recommend trying to deal by mail with this advertiser.

* * *

The following additional epoxy-resin products were not tried for repairing chipped porcelain enamel. Most of them are dark in color. Our experience with products labeled as epoxy-resin formulations has thus far been good in all cases, and we believe that any one of these cements is likely to be useful in many repair jobs.

Duro Plastic E-Pox-E Chemsteel (Woodhill Chemical Co., 1390 E. 34 St., Cleveland 14) \$1 for three small glass jars containing resin, hardener, and powdered steel to be used as a filler.

Epibond (Furane Plastics, Inc., 4516 Brazil St., Los Angeles 39) \$1.59 for two tubes containing $1\frac{1}{2}$ oz. each of resin and hardener.

Helor Hi-Water Concrete Adhesive (Epoxy Coatings Co., Box 902, South San Francisco) \$2 for two tubes containing 2 fl. oz. each of resin and hardener.

Plastic Steel (Devcon Corp., Danvers, Mass.) 98c for small jar of resin and vial of hardener; also available in 2 tubes for 98c. (Note that *Devcon Steel*, a recently introduced product of the same company, is *not* an epoxy-resin product.)

Resiweld (H. B. Fuller Co., St. Paul, Minn.) 98c for 2 tubes containing resin and hardener; \$1.98 for a similar larger package.

Tapox Epoxy Resin (Taylor Art, Inc., 1710 E. 12 St., Oakland 6, Calif.) \$2.30 for 8 oz. of resin and 2 oz. of hardener. A liquid formulation intended primarily for bonding glass fiber fabric to metal and also suitable for bonding wood and other materials.

Twinweld, Epoxy Type (Fybrglas Div. of Schramm Fiberglass Products, Inc.) 98c for two small cans containing $\frac{3}{4}$ fl. oz. each of resin and hardener; \$1.98 for two tubes containing 2 oz. each.

* For the special use described, and tentatively for repairs in general that call for high strength, tenacity, permanence, water resistance, durable plugging of leaks, etc.

No easy way for snow and ice removal

*Do not put your snow shovel away for the winter
in the belief that you can do the job by sprinkling
a chemical on walks or driveways.*

IF the daring and enthusiastic claims made for many of the proprietary products now being sold for melting ice and snow were true, or even nearly true, you could discard your snow shovel and never again need be concerned about slippery steps, icy walks, or unplowed driveways. Unfortunately, however, the wild claims are made principally to sell products which are neither new nor strikingly effective. Often they are nothing more than sodium chloride (common salt), or calcium chloride, packaged in a fancy container and sold on the basis of misleading advertising, at very high prices. The companies which promote such products are, in most instances, merely distributors, for they usually purchase their chemicals from large manufacturers, and merely repack-age the salts under new labels and new names.

The promoters of these products under many different names fail to tell you what it will cost to get rid of snow and ice by their use. We can tell you that if there is any substantial amount of snow and ice involved, their use will be prohibitively expensive.

While there are many substances that could be used for the melting of snow and ice, sodium and calcium chloride are by far the most popular because of their comparatively low price. Calcium chloride will melt ice or snow at a faster rate and function as a melting agent at temperatures well below the point at which sodium chloride ceases to be effective. However, calcium chloride is about twice as expensive and therefore offers no particular advantage from the point of view of the cost of removing ice from a sidewalk.

Both chemicals tend to increase considerably the corrosion rates of steel. For this reason, they are at a marked disadvantage as means for clearing snow and ice from roadways. It is generally conceded, nevertheless, that the increased safety afforded motorists by their use far outweighs the substantial damage they cause to automobile bodies and frames. If you live in an area where

The claims made for many of the proprietary products available for melting ice and snow are lavish and often scientifically absurd and they cannot be achieved in practice. The price per pound for the material is more likely to be based on the number and diversity of the claims made than on the actual useful contents of the container. "Unconditionally guaranteed to melt snow and ice" is a typical claim, but the sellers of products with this claim forget to mention that if you mean more than a little snow and ice, you cannot possibly expect to get rid of it by applying economically practicable amounts of their chemical. None of the advertising we have seen tells you how much snow and ice you can melt with a pound of the proprietary product, a piece of information that everyone who is not unusually well heeled will want to have before buying.

These proprietary products are based on simple, familiar, and cheap substances, sodium chloride or rock salt, and calcium chloride. Either of these will do the job much more cheaply than the commercial packaged ice and snow melters. Each is actually quite limited in effectiveness by comparison with sky-is-the-limit claims made for some commercial chemicals sold for snow melting.

wintertime driving conditions call for the liberal use of one of these ice-melting salts, you would be well advised to have your car washed frequently during the winter months and to instruct the

serviceman to pay particular attention to the underparts of the car. Unfortunately, there are many places within the interior panels of most cars that cannot be reached to be cleaned. Lack of an adequate protective coating in these nooks and crannies and the fact that there is little or no ventilation tend to promote corrosion when the chlorides in roadway slush or water find their way into them.

Both chemicals have the further disadvantage that they may cause damage to trees, shrubs, and lawns in areas immediately adjacent to roadways and walks on which they are used. The severity of this damage is generally proportional to the amount of the material used during the winter season. The injury to trees, shrubs, and lawn can be reduced to an extent if the areas are well watered for a period at the start of the spring growing season. Better still, use common sand, if practicable, on icy sidewalks or steps and forego

the chemical melting agents. Sand will be tracked into the house, but the other products would be also, and sand and grit from the roadway or sidewalk will come with them, to the great disadvantage of rugs, carpets, linoleum, and polished wood floors.

In brief, if you have need for an ice-and-snow-melting chemical for use around the house in the winter, you would be well advised to confine your purchase to common ordinary rock salt or calcium chloride bought as cheap bulk products at the building supply dealer's shop or at a hardware or grocery store. There's no need at all to pay several times the price for the same thing put up in small packages at a great advance in price per pound. Practically all of the proprietary products are far more expensive than their basic materials, although many, when analyzed, will be found to be merely calcium chloride, with possibly an ineffective corrosion inhibitor added.

Emendations to Consumer Bulletin

Portable electric mixers

Page 20, June '60 Bulletin

The rating of the *Kenmore Model 311.82820* electric mixer (Sears-Roebuck's Cat. No. 34-8282) is changed from *C. Not Recommended* to *B. Intermediate*. A second sample of the mixer gave good performance in the life test (it also passed the applicable electrical tests). The Sears' guarantee for electric housewares states that the mail-order company will replace with a new item, at no charge to the customer, any *Kenmore* appliance which proves defective in materials or workmanship within one year of purchase. Consumers' Research has found that it is best if the consumer can have papers indicating the date of purchase, and the guarantee certificate, although stores are instructed to accept the customer's statement in the event that these papers cannot be supplied.

Electrical testing in the home

Page 29, Col. 1 and 2, Sept. '60 Bulletin

Change the rating of the *Star No-Leak Universal Tester* to *B. Intermediate*. As a result of CR's finding, the manufacturer has seen fit to change the construction of the tester to include resistors of larger value in ohms in the circuit of the device. The new resistors limit leakage current available at the probes when the device is plugged into a 115-volt a-c outlet to an amount somewhat less

than 0.6 milliamperes. However, this tester still has the disadvantages common to neon-bulb leakage testing devices as described in the text of the article.

Are you planning to buy or build a house?

Page 9, Col. 2, Sept. '60 Bulletin

The figure of \$200 given in the article as an estimate for installing a septic-tank system appears to be too low for many areas in the United States. Letters from CR's readers indicate that the cost of a septic tank alone may come close to \$200. The cost of the excavation and installation will, of course, vary with the nature of the soil, size of the system, including the drainage field through which the effluent soaks into the soil. It would seem that a more realistic figure for the septic tank and the drainage field will be between \$400 and \$800 in most areas.

The 1961 TV receivers

Page 17, Col. 2, and Page 18, Col. 1, Dec. '60 Bulletin

The manufacturer's suggested retail price of the *Motorola Model Y23T2CH* is \$230, not \$260 list.

The manufacturer's factory-suggested list price of the *Admiral Model T24M110* is \$220, not \$290. Any correspondence to the Admiral Corp. should be addressed to 3800 W. Cortland St., Chicago 47, Ill.

Rechargeable flashlights

(The beginning of this article is on page 39)

bulb) gave bulb numbers for desired performance.

The rechargeable lights are not inexpensive and would therefore not be worth while for people who did not have considerable use or regular need for a flashlight. They are convenient, however, and if one takes the trouble to keep them charged, they give the assurance that, when a flashlight is needed, it will be in working order.

A good point to remember in the use of the rechargeable flashlights is that recharging them when they are about half exhausted will greatly increase the total useful life of the batteries. Nickel-cadmium batteries are claimed to have a life of some 5000 charge-discharge cycles, not far from the indefinite life claimed in some ads.

There are some important applications, of course, where the rechargeable type cannot be recommended, for example, on camping trips where a source for charging would not likely be available. (One make, the *Life Lite*, offers an optional accessory for \$3, which permits recharging from an automobile battery through the cigarette lighter. Many campers might find this a convenient and practical arrangement.) The references to guarantees in the listings are the makers' claims as they appear in advertising or on instruction sheets supplied with batteries.

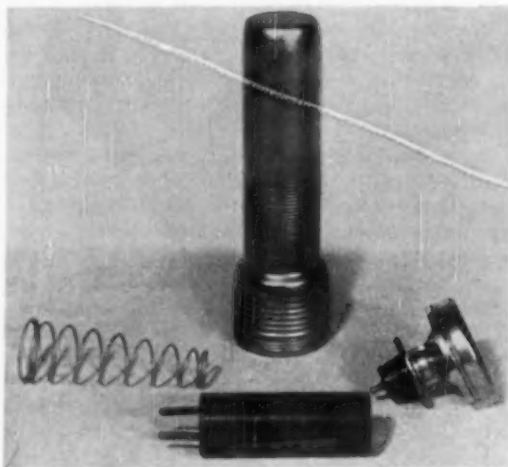
A. Recommended

Life Lite Super 200, Model S (Gulton Industries, Inc., Metuchen, N.J.) \$9.95. Weight, 8 oz. Uses standard 1½-in. reflector and prefocused flashlight bulb. With a PR-4 bulb (used for longer light duration), the flashlight burned 2 hr. on one 24-hr. charge. Has a built-in magnet for attaching to iron and steel surfaces. A charging adaptor which plugs into cigar lighter socket in a car is available at \$3 extra. Plastic switch had sharp corners (undesirable). Battery guaranteed for 5 yr.

Life Lite Galaxy, Model M (Gulton Industries, Inc.) \$5.95. Weight, 3 oz. A relatively small flat flashlight which uses a prefocused bulb and no reflector. Lamp burned 1 hr. on a 24-hr. charge. Automobile charging adaptor, \$3 extra. Battery guaranteed for 5 yr.



Sonotone rechargeable battery is shown with its cap removed.



Geni Wonderlite is shown disassembled. The rechargeable battery is the cylindrical object in the foreground of the picture.

Sonotone Rechargeable Flashlight Battery (Sonotone Corp., Elmsford, N.Y.) \$7.95. Weight, 7 oz. The model tested appeared to be the FC-3 or the industrial model. The lack of any model designation on the battery itself or in advertising literature made a precise identification impossible. This battery can be used in any flashlight or device that accommodates two D-size flashlight batteries end to end in series. Consists of two nickel-cadmium cells and a charger in a case. The cap is unscrewed and the unit is plugged into any 115-volt a-c socket for recharging. When used with a PR-2 bulb (used for brightest light), the *Sonotone* battery provided 1 hr. 15 min. of usable light per 24-hr. charge. Guaranteed for 5 yr.

B. Intermediate

Geni Wonderlite (Geni Wonder Products, Inc., Chatham, N.Y.) \$5.95. Weight, 4½ oz. This lightweight flashlight consisted of a chrome-plated case made in the U.S. and a *Model WP21C* rechargeable battery made in West Germany. To recharge, the battery is removed from the case, and a large spring is removed from the prongs, which are then inserted into any 115-volt a-c socket. The battery provided about 40 min. of light per 24-hr. charge, using a PR-9 (low current) bulb. The flashlight was judged somewhat difficult to reassemble after charging. Battery is guaranteed for 2 yr.

Hoptix (Hoptix, P.O. Box 424, Philadelphia 5) \$4.95. Made in West Germany. Weight, 4 oz. Rechargeable flashlight which uses a special small bulb. Recharging is done by plugging body of flashlight into any 115-volt a-c socket. Produced about 1 hr. 25 min. of light per 24-hr. charge. (Instruction sheet claimed 2 hr.) Bulb life was short, and special bulbs were available only from Hoptix in Philadelphia at 25¢ each.

Phonograph Records

BY WALTER F. GRUENINGER

Please Note: Stereo records are indicated by the symbol (S). Ratings (AA, A, B, etc.) apply first to the quality of interpretation, second to the fidelity of the recording. Most performances are available on both stereo and regular LP records.

⑤ **Beethoven: Symphony No. 7.** Royal Philharmonic under Beecham. Capitol SG 7223. \$5.98. Apparently Beecham accepts none of the usual interpretations of this marvelous symphony. His second movement sounds unusually slow though it is beautifully moulded. The third movement sounds fast. The final movement is thrilling. Overall, I would not want this as the only 7th in my library, but I welcome it as a unique interpretation sensitively, gracefully played with careful attention to dynamics. The recording is rather distant. **A B**

⑤ **Brahms: Concerto No. 2.** Sviatoslav Richter (piano) with the Chicago Symphony under Leinsdorf. RCA Victor LSC 2466. \$5.98. Lyrical quality and grace beyond that generally heard in this ponderous piece set this performance apart. Richter has been hailed as one of the great pianists of our time. Certainly this disk, as well as the cough-ridden Sofia concert performance on the new Columbia ML 5600 where he plays *Pictures at an Exhibition*, indicate this is true. Victor's is one of the foremost disks of the season. **AA AA**

⑤ **Copland: Four Dance Episodes from Rodeo.** N. Y. Philharmonic under Bernstein. Columbia MS 6175. \$5.98. In celebration of Copland's 60th birthday we hear such numbers as "Buckaroo Holiday," "Corral Nocturne," "Saturday Night Waltz," "Hoe-Down," "Billy the Kid." Folk-like, mostly lively, infectious music. Brilliant conducting and recording. **AA AA**

⑤ **Elgar: Enigma Variations & Brahms: Haydn Variations.** London Symphony under Monteux. RCA Victor LSC 2418. \$5.98. Two sets of great variations transparently played. What a pleasure to hear a man of Monteux's stature conduct this music! The recorded sound is boomy, though in other respects excellence prevails. **AA A**

Haydn: Sonatas in E Flat and E Minor, Andante and Variations in F Minor (piano), and Sonatas in C, G, and D (harpsichord). Landowska. 4 sides, RCA Victor LM 6073. \$9.96. By the miracle of recording, we hear for the first time these performances of Landowska who died in August 1959. Partly because they fail to give the virtuosos recitalist a chance to display prodigious technique, you are not likely to hear this music in concerts. But the singular playing of Landowska breathes life into them and there's much enjoyment in store for the discerning listener. Acceptably recorded in Landowska's home in Lakeville, Conn. **AA A**

⑤ **Lalo: Symphonie Espagnole & Wieniawski: Violin Concerto No. 2.** Olevsky (violin) with the Vienna State Opera Orchestra under Rudel. Westminster WST 14121. \$5.98. Standard romantic works played neatly, with stress on lyricism. I've heard nothing of Olevsky heretofore that equals his playing here. In the Lalo, the orchestra isn't always precisely on beat with the soloist. Very well recorded, with the soloist heard from the left speaker. **A AA**

⑤ **Mahler: Das Lied von der Erde.** Fischer-Dieskau and Murray Dickie (baritone and tenor) and *Adagietto* from *Symphony No. 5.* Philharmonia Orchestra under Kletzki. 4 sides, Angel 3607B. \$11.96. Very likely Mahler's most enduring composition is this cycle, based on Chinese poems. First recording of a baritone singing the part generally allotted to a contralto, though Mahler made the voice optional. It is difficult to think of a more romantic, warm performance than these artists turn in, but I still prefer a contralto voice in the major solo part. The singing detracts from an otherwise superb *Das Lied* under Bruno Walter on the new Columbia M2S 617. Both the Angel and the Columbia sets are recorded in depth, with wide range. **AA AA**

⑤ **Mozart: Don Giovanni.** Wächter, Sutherland, Alva, Frick, Schwarzkopf, Taddei, etc., under Giulini. 8 sides, Angel 3605. \$23.92. An operatic masterpiece performed

often—and a good thing, too. No recording stands head and shoulders above its neighbors, though I prefer Decca 7302 with Fischer-Dieskau, etc., under Fricsay. In the new Angel set, Wächter sings less effectively than he should, and the same may be said for Taddei and Cappuccilli. Miss Sutherland, Miss Schwarzkopf, and Miss Sciutti are quite satisfactory, and so is the direction. Good sound. . . The new recording on RCA Victor LSC 6910 (\$17.98 in stereo) is conducted by Leinsdorf, praise be. In Birgit Nilsson he has a first rate Anna, but the other ladies don't equal her. The men, led by Siepi in the name role, pass muster, but none is distinguished. Superb sound, with clashing swords, clinking dishes, movement across stage, wide channel separation, etc., aiding in the illusion. Altogether a tossup between the new Victor and Angel sets. **A AA**

⑤ **Mozart: Symphonies Nos. 35 and 39.** Cleveland Orchestra under Szell. Epic BC 1106. \$5.98. The great Haffner and the nearly great E Flat. Intense, well-shaped performance which you generally expect from Szell. Well recorded, too. **AA AA**

⑤ **Paganini: Concerto No. 1 & Wieniawski: Concerto No. 2.** Rabin (violin) with the Philharmonia Orchestra under Goossens. Capitol SP 8534. \$5.98. Two romantic, melodic works that please the ear upon first hearing. Very likely, though, the attention may soon turn to the question of how well were the technical problems solved. Here, with ease. Moreover, Rabin's tone is silken, his attack clear and smooth. But he could put just a bit more feeling into the score. Despite reservations, I enjoyed this disk which is clearly recorded. **A AA**

⑤ **Paisiello: The Barber of Seville.** Sciutti, Monti, Panerai, Capecchi, etc., under Fasano. 4 sides, Mercury SR 2-9010. \$11.96. A first recording of an opera buffa from 1782 which possesses charm, good tunes, and sharp characterization. Mario Petri as Basilio doesn't focus his voice as effectively as he might, but all other soloists come through very well. Fasano conducts most effectively. Gratifying sound. **AA AA**

⑤ **Ravel: Bolero and Alborada del Gracioso and Le Tombeau de Couperin.** The Philadelphia Orchestra under Ormandy. Columbia MS 6169. \$5.98. Stunning performances of colorful, popular Ravel orchestral works. Outstanding engineering. It is difficult to imagine a better disk of this music. **AA AA**

⑤ **Strauss: Ariadne auf Naxos.** Rysanek, Peters, Surinac, Pearce, etc. Vienna Philharmonic under Leinsdorf. 6 sides, RCA Victor LDS 6152. \$17.98. Despite its rich tonal texture and witty book, this chamber opera has never achieved a wide audience. But it is a pleasure to hear it performed on disks occasionally. Not that this is the ultimate performance. Actually, Angel 3532 surpasses it ever so slightly. In the Victor set, Rysanek as Ariadne and Pearce as Bacchus turn in stylish performances. Roberta Peters as Zerbinetta lacks ease in the highest registers. The other members of the cast pass muster. The direction focuses on beauty of sound yet lacks the full charm of the Angel set. The engineering in the Victor set is superb, outdistancing the older mono Angel set. **A AA**

⑤ **Tchaikovsky: Symphony No. 4.** Berlin Philharmonic under von Karajan. Angel S 35885. \$5.98. A glowing, delectable account of a Tchaikovsky masterpiece. It's an easy work to exaggerate but, in general, von Karajan resists the temptation. Some of his tempi call for virtuosos players, but he has them here. Spacious recording with wide channel separation. "Pre-echo" is heard just before the opening of the fourth movement, and the big-hall sound does detract a bit from clarity. **AA A**

⑤ **Verdi: Requiem Mass.** Vartanissian, Cossotto, Feriandi, Christoff, etc., under Serafin. 4 sides, Capitol SGBR 7227. \$11.96. Some critics regard this as Verdi's

supreme work. Serafin's relaxed, sympathetic conducting impresses me more favorably than some of his soloists. Outstanding, though, are Shakeh Vartenissian and Boris Christoff. Acceptable recording but the loud choral sections, despite stereo, fall short of concert hall sound and the soloists stand too far forward. Though the performance doesn't come up to the extraordinary, dramatic Toscanini RCA Victor LM 6018, the sound easily surpasses it. . . . But if it's *drama* you want, turn to Fritz Reiner's conducting of this Mass on the new RCA Victor LDS 6091 which offers such stellar soloists as Price, Elias, Bjoerling, Tozzi in a spacious recording that ranks best of the recent ones. **A A**

⑤ **Vivaldi: Il Cimento Dell'Armonia e dell' Invenzione.** Virtuoso di Roma under Fasano. 6 sides, Angel 3611. \$17.94. Charming, virile Baroque concertos, with solo violin most of the time and solo oboe some of the time. Included are the famous "Four Seasons." Though not all of his music is first rate, Vivaldi certainly was a prolific writer in this field. His knowledge of the capabilities of the violin is extraordinary. Taken a side at a time—most enjoyable. The playing is on a high level, though there are spots where you just know one of the world's great violinists, rather than one of the capable group presented here, could add a bit. But it's not serious. The recording is forward, clear, pleasing. **A A**

⑥ **Adventures in Music.** National Symphony Orchestra under Mitchell. RCA Victor LES 1009. \$5.98. An enjoyable collection. You may find it difficult to track this one down because it is meant for Grade 6 in a new record library for elementary schools! The accompanying 88-page teacher's guide will open your eyes and ears to beauties that have escaped you for years. But here are the "Rosenkavalier Suite," "On the Steppes of Central Asia," Bach's "Little Fugue in G Minor," "The White Peacock," and other selections played sensitively and recorded brightly, with just the right amount of reverberation. RCA Victor puts out the disk for school children, but I suggest you take it into your living room to share with all members of the family. **AA AA**

⑦ **Austria.** The Köflich Chorus and the Styrian Quintet. Monitor MFS 341. \$4.98. A delightful disk of Styrian folksongs and dances. There's atmosphere here, as well as skillful singing by a mixed chorus of around 30 voices. An instrumental quintet plays a few ländler and polkas between choral numbers. Recording notable for clarity. Titles include "Hopp Auf," "Dirndl Magst An Rosoli," "Ennstaler Glöckenjodler," "Mei Tag Hat Drei Stunden." **AA AA**

⑧ **Bonbons Aus Wien.** Boskovsky Ensemble. Vanguard VSD 2068. \$5.95. A flavorsome off-beat item. Eight of the top members of the Vienna Philharmonic have produced a disk of rarely heard old Vienna dances including works by Johann Strauss (Sr. and Jr.), Lanner, Mozart, Schubert. Nothing profound but quite delightful. Sensitive performance in the finest Viennese style and expert, spacious recording. **AA AA**

⑨ **Broadway in Brass.** Eric Johnson and His Orchestra. Westminster WST 15061. \$5.98. If you like a predominately brass group, with piano and percussion obviously on hand, playing Broadway tunes in a firm beat, often Latin flavored, this is for you. Included are tunes from "Annie Get Your Gun," "Kiss Me Kate," "Oklahoma," "West Side Story," "Roberta," and others. The players do their job well and they are handsomely aided by the engineers. . . . If your taste runs to strings for show tunes and standards, you may prefer the refined arrangements on a companion disk called *While Making Love*, also by Eric Johnson and His Orchestra on Westminster WST 15062. **AA AA**

Judy—That's Entertainment. Judy Garland (singer). Capitol T 1467. \$3.98. Differing from some of her recent efforts, Judy is in fine fettle here. Her fans will not be disappointed in her singing of "Who Cares," "Yes," "Puttin' On the Ritz," "Alone Together," and similar tunes ranging from sentimental to the lively. Well recorded, too. **AA AA**

⑩ **Klemperer Conducts Wagner.** Philharmonia Orchestra under Klemperer. 4 sides, Angel 3610B. \$11.96. Angel

releases this set in celebration of the 75th Anniversary of Klemperer. Included are "Overture to Rienzi," "Flying Dutchman," "Tannhäuser" plus two "Lohengrin Preludes," as well as music from "Die Meistersinger," "Tristan," "Götterdämmerung." Majestic conducting gives Wagner his due. The sound suffers a bit from lack of volume contrast. But in all other respects, an outstanding set. **AA A**

John McCormack Sings Sacred Music. RCA Camden CAL 635. \$1.98. Though the distinguished Irish tenor recorded these simple miniatures long before the words "high fidelity" entered our vocabulary, his artistry comes through unmistakably. Included are "The Rosary," two "Ave Marias," "Thanks Be to God," "Nearer My God to Thee," and similar songs. **AA C**

⑪ **Milstein Masterpieces.** Milstein (violin), with the Concert Arts Orchestra under Susskind. Capitol SP 8528. \$5.98. Few living violinists equal Milstein's musicianship and technique. With elegance and taste he tosses off such pieces as Wieniawski's "Legende," Novacek's "Perpetuum Mobile," Saint Saens' "Introduction and Rondo Capriccioso." Don't miss this disk! Beautifully recorded. **AA AA**

⑫ **Mr. New Orleans Jazz Meets Mr. Honky Tonk.** Pete Fountain and "Big" Tiny Little and Their Bands. Coral CRL 757334. \$4.98. Swell disk—rowdy, best taken a bit at a time but likely to set you in motion and sure to show off your stereo rig. Pete Fountain comes out of the left speaker and Honky Tonk comes out of the right in the battle of the bands, sometimes alternating, sometimes playing together. Very well recorded. Included: "After You've Gone," "Alexander's Ragtime Band," "Jazz Me Blues," "Darktown Strutters' Ball," and others. **AA AA**

⑬ **Music for French Horn and Orchestra.** Stagliano and Berv (soloists) with the Kapp Sinfonietta under Dunn. Kapp KC 9053. \$4.98. Concerti by Telemann, Handel, Barsanti, Steinmetz, and a suite by Telemann. Bright, superb recording. Well played by both French horns and the orchestra. The disk will appeal most, of course, to those who like the French horn. **AA AA**

⑭ **97 Keys.** Paulena Carter (piano). Hi Fi Record R 205. \$4.95. Miss Carter is a gifted pianist. She plays a sheaf of favorite encore pieces, including "Liebestraum," "Malaguena," "Clair de Lune," "Valse Oubliee," "Rustles of Spring," "Gnomesreigen." A diverting 50 minutes or so. Clear, lifelike recording except for some pre-echo and background hiss. The album gets its title from the Bechstein piano employed which has 97 keys instead of the usual 88. **AA A**

⑮ **Odella at Carnegie Hall** (singer). Vanguard VSD 2072. \$5.95. A big attraction on the folksong circuit is Odella, who belts out her songs in an arresting style to her own guitar accompaniment. In the main, this is her Carnegie Hall recital of April 8, 1960. She sings such numbers as "If I Had a Hammer," "Gallows Pole," "John Henry," "Hold on Prettiest Train," and "Sometimes I Feel Like a Motherless Child." A chorus aids her in several pieces. Satisfactorily recorded. **AA A**

⑯ **Reiner Conducts Wagner.** Chicago Symphony. RCA Victor LSC 2441. \$5.98. Orchestral music from "Die Meistersinger" and "Die Götterdämmerung" played with breadth and strength and deep understanding. Richly recorded, too. . . . I prefer Reiner's interpretation to the relaxed Bruno Walter disk of Wagner pieces including some ponderous "Meistersinger" and some ethereal "Parsifal" on Columbia MS 6149. **AA AA**

⑰ **Spanish Music of the Renaissance.** New York Pro Musica under Greenberg. Decca DL 79409. \$5.98. Noah Greenberg has done it again! His magnificent "The Play of Daniel" (Decca DL 9402) is nearly matched by this disk, which presents an assortment of fascinating vocal and instrumental pieces. Beautifully performed and well recorded. **AA AA**

⑱ **The Sound of a Minstrel Show.** The Medallion Minstrel Men. Medallion MS 7506. \$5.98. Lots of fun! "Hot Time in the Old Town Tonight," "Roll Dem Bones," "After the Ball," "Dixie," and others. The band and voices fit the bill, whooping it up, playing it straight, as required. No jokes—just music. Excellent recording. **AA AA**

Ratings of Current Motion Pictures

THIS SECTION aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 17 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Boxoffice, Cue, Daily News (N. Y.), The Exhibitor, Films in Review, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, New York Herald Tribune, New York Times, The New Yorker, Parents' Magazine, Release of the D. A. R. Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, The Tablet, Time, Variety (weekly).

The figures preceding the title of the picture indicate the number of critics whose judgments of its entertainment values warrant a rating of A (recommended), B (intermediate), or C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
c—in color (Anso, Eastman, Technicolor, Trucolor, Warner Color, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
9	5	2	Alamo, The	hist-dr-c AYC
—	3	1	All in a Night's Work	com-c A
—	4	8	All the Fine Young Cannibals	dr-c A
—	2	1	Amazing Mr. Callaghan, The	mys-mel A
—	3	3	Amazing Transparent Man, The	sci-dr AY
—	5	7	Angel Wore Red, The	dr-c A
1	2	1	Angry Silence, The (British)	dr A
—	1	3	Another Sky (British)	dr A
—	2	1	Aunt from Chicago, The (Greek)	com AY
—	3	9	Bell Boy, The	com AY
2	2	1	Belles and Ballets (French)	doc-c AY
—	4	3	Between Time and Eternity (German)	dr-c A
—	2	3	Beyond the Time Barrier	sci-dr AY
1	5	—	Big Deal on Madonna Street (Italian)	cri-com AY
—	3	—	Black Tights	mus-dr-c A
—	8	—	Boy Who Stole a Million, The (Spanish)	cri-dr AYC
—	4	4	Breath of Scandal, A	com-c A
—	6	9	Butterfield 8	nov-c A
—	2	6	Cage of Evil	cri-mel AY
—	1	4	Caltiki, The Immortal Monster (Mexican)	sci A
—	6	—	Chartreuse Caboose	com-c AYC
1	3	—	Cimarron	nov-c AY
—	5	6	Cinderella	mus-fan-c AY
—	2	1	Circle of Deception	dr A
—	2	1	Code of Silence	cri-mel AY
—	1	6	College Confidential	dr A
—	5	6	Come Dance with Me (French)	dr-c A
—	4	2	Confess, Dr. Korda! (German)	cri-mel A
—	2	2	Counterfeit Coin, The (Greek)	dr A
—	2	1	Counterfeit Traitor, The	war-dr-c AY
—	3	—	Crazy for Love (French)	com A
—	6	3	Crowded Sky, The	dr-c A
—	3	5	Crowning Experience, The	propaganda-c A
—	13	3	Dark at the Top of the Stairs, The	dr-c A
—	1	2	Date Bait	soc-mel AY
—	3	—	Day of the Painter	doc-c AY
—	4	8	Desire in the Dust	dr A

A	B	C		
—	4	2	Dog, a Mouse, and a Sputnik, A (French)	com A
—	3	2	Dondi	dr AY
1	2	1	Elevator to the Gallows (French)	dr A
—	8	2	End of Innocence (Argentine)	dr A
—	3	6	Enemy General, The	war-dr A
—	7	7	Entertainer, The (British)	dr A
—	3	—	Escape to Berlin (German)	dr AY
—	4	5	Esther and the King (Italian)	adv-c A
2	4	1	Exodus	nov-c AY
—	4	2	Facts of Life, The	com-c A
—	3	1	Fanny	mus-dr-c A
—	5	5	Fast and Sexy (French-Italian)	com-c AY
—	2	1	Fedra, the Devil's Daughter (Spanish)	dr A
—	3	1	Fever in the Blood, A	dr A
—	3	1	Flaming Star, The	mel-c AY
1	3	3	Flute and the Arrow, The (India)	dr-c AY
—	6	1	For the Love of Mike	dr-c AYC
—	3	—	Four Desperate Men (Australian)	mel AY
—	5	2	Freckles	dr-c AYC
—	1	2	French Mistress, The (British)	com A
2	5	3	General Della Rovere (Italian)	war-dr A
—	6	4	G.I. Blues	mus-com-c AY
—	3	—	Girl in Lovers' Lane, The	mel A
—	1	7	Girl of the Night	soc-dr A
—	3	—	Go Naked in the World	nov-c A
—	2	1	Goddess of Love (Italian)	mel-c A
—	2	1	Goliath and the Dragon (Italian)	adv-c A
—	2	2	Good Girls Beware (French)	mel A
—	3	3	Grass is Greener, The	dr-c A
1	3	—	Great Day, The (Spanish)	dr AYC
—	4	2	Great Imposter, The	dr A
—	2	1	Great Knight, The (Italian)	dr-c AY
—	2	1	Guns of the Navarone, The	war-dr-c AY
—	3	—	Half Pint, The	com AYC
—	3	—	Hand in Hand (British)	dr AYC
—	6	3	Heaven on Earth (Italian)	dr-c AYC
—	7	1	Hell is a City (British)	cri-mel A
1	3	10	Hell to Eternity	war-dr A
—	2	2	Herod the Great (Italian)	mel-c A
—	2	1	Heroes Die Young	war-mel A

A	B	C		
—	—	3	Hideout in the Sun.....	cri-mel-c AY
—	1	7	High Powered Rifle, The.....	cri-mel AY
—	2	1	High School Caesar.....	mel AY
2	7	6	High Time.....	mus-com-c AY
3	6	—	Hound that Thought He Was a Raccoon, The.....	doc-dr-c AY
—	—	3	How to Make a Monster.....	mel A
1	8	4	I Aim at the Stars.....	biog-dr AY
—	2	4	I Passed for White.....	soc-dr A
5	8	3	Inherit the Wind.....	dr A
—	2	1	Interview, The.....	car AY
—	8	2	It Happened in Broad Daylight (Swiss).....	dr A
—	9	3	It Started in Naples.....	dr-c A
—	2	1	Ivan the Conqueror (Italian).....	hist-dr-c AY
—	3	3	Jazz Boat (British).....	mus-cri-dr A
—	3	5	Journey to the Lost City.....	adv-c AY
—	1	2	Juke Box Racket (British).....	mus-com AY
3	10	1	Jungle Cat.....	adv-c AY
—	6	3	Key Witness.....	cri-dr A
—	—	4	Kill Her Gently.....	cri-mel A
—	3	—	Kill Me Tomorrow (British).....	cri-mel AY
—	2	2	Last Woman on Earth, The (British).....	mel-c A
—	3	—	Left, Right, and Center (British).....	com A
—	2	5	Legions of the Nile (Italian).....	mel-c A
—	5	9	Let No Man Write My Epitaph.....	soc-mel A
2	8	7	Let's Make Love.....	com-c A
—	3	—	Little Shepherd of Kingdom Come.....	dr-c AY
—	2	1	Little Shop of Horrors, The (British).....	cri-dr A
—	—	3	Louisiana Hussy.....	mel A
—	4	4	Love Game, The (French).....	com A
—	—	3	Loves of a Greek in Paris (Greek).....	dr A
—	1	3	Ma Barker's Killer Brood.....	cri-mel A
—	—	3	Madame X (Greek).....	dr A
—	—	3	Magdalena (German).....	soc-dr A
—	3	—	Magic Boy (Japanese).....	car-c AY
—	8	5	Magnificent Seven, The.....	wes-c AY
—	3	—	Majestic Island.....	trav-c AY
—	3	1	Make Mine Mink (British).....	cri-com A
—	3	3	Marie Octobre (French).....	war-dr AY
—	3	2	Marriage-Go-Round.....	com-c A
—	1	2	Menace in the Night (British).....	cri-mel AY
1	10	3	Midnight Lace.....	mys-dr-c AY
—	2	1	Millionairess, The (British).....	dr-c A
—	2	1	Missile from Hell (British).....	war-dr A
—	2	1	Mistress, The (Japanese).....	dr A
—	1	3	Model for Murder (British).....	cri-mel A
—	—	3	Morals Squad.....	cri-dr A
—	3	—	Mysteries of the Deep.....	doc-c AY
—	2	1	Naked and the Wicked, The (Italian).....	mel A
1	2	1	Naked Night, The (Swedish).....	dr A
—	3	—	Natchez Trace.....	hist-mel A
—	6	4	Never on Sunday (Greek).....	com A
—	5	3	Night Fighters, The.....	war-dr AY
—	4	6	Nights of Lucretia Borgia, The (Italian).....	dr-c A
—	1	3	No Morals (French).....	cri-mel A
1	5	4	North to Alaska.....	com-c A
—	7	8	Ocean's Eleven.....	cri-dr-c A
—	2	6	Ostrich Has Two Eggs, The (French).....	dr A
—	2	1	Parrish.....	dr-c A
2	5	—	Pepe.....	mus-com-c AY
—	1	6	Picnic on the Grass (French).....	dr-c A
—	6	1	Please Turn Over (British).....	dr A
—	3	3	Plunderers, The.....	mel A
—	1	4	Port of Desire (French).....	dr A

A	B	C		
—	2	1	Price of Silence, The.....	mys-mel A
—	2	1	Prisoners of the Congo.....	mel-c A
—	—	3	Private Lives of Adam and Eve, The.....	com A
—	2	1	Rachel Cade (British).....	dr-c A
—	6	4	Rest in Silence, The (German).....	dr A
—	2	1	Revolt of the Slaves.....	dr-c A
—	2	1	Ritual of Love, The (French).....	doc-c A
1	4	—	Royal Ballet, The (British).....	doc-c AY
—	3	1	Rue de Paris (French).....	dr A
—	3	—	Runaway.....	soc-mel AY
—	3	3	Santa Claus (Mexican).....	dr-c AY
—	1	3	Saturday Night and Sunday Morning (British).....	dr A
—	6	2	Savage Innocents (British).....	doc-dr-c A
1	10	2	School for Scoundrels (British).....	com A
—	1	5	Secret of the Purple Reef.....	mys-mel-c AY
—	—	3	See Naples and Die (Italian).....	dr A
—	6	8	September Storm.....	dr-c AY
—	8	1	Seven Ways from Sundown.....	wes-c AY
—	2	5	Sex Kittens Go to College.....	com A
—	3	—	Shadows.....	soc-dr A
—	2	3	Shakedown, The (British).....	cri-mel A
—	1	2	She Walks by Night (German).....	mel A
—	4	1	Sign of Zoro.....	adv AY
—	2	1	Sin and Desire (French).....	dr A
5	6	4	Spartacus.....	dr-c A
—	3	1	Splendor in the Grass.....	dr-c A
—	1	2	Spring Affair.....	com A
—	1	6	Squad Car.....	mel A
—	4	8	Studs Lonigan.....	nov A
—	2	1	Summer of the 17th Doll (British).....	dr A
1	6	—	Sundowners, The.....	dr-c AY
6	6	3	Sunrise at Campobello.....	biog-c AY
—	1	2	Sweet Life, The (Italian).....	dr A
3	5	—	Swiss Family Robinson.....	adv AY
—	5	2	Ten Who Dared.....	hist-dr-c AY
1	6	7	39 Steps, The (British).....	mys-mel-c AY
—	2	1	Three Forbidden Stories (Italian).....	soc-dr A
—	5	—	Three Worlds of Gulliver, The.....	fan-c AY
—	5	5	Three-Penny Opera, The (German).....	mus-dr A
—	3	—	Tormented, The.....	cri-dr AY
—	2	2	Touch of Flesh, The.....	soc-dr A
—	—	7	Trapped in Tangier (Italian).....	cri-mel-c AY
—	3	—	Two Faces of Dr. Jekyll, The (British).....	dr-c A
—	—	3	Unashamed, The.....	dr A
—	10	7	Under Ten Flags (Italian).....	war-dr A
—	3	2	Upstairs and Downstairs (British).....	com-c A
—	8	3	Village of the Damned (British).....	sci AY
—	1	2	Violent Summer (Italian).....	war-dr A
2	3	5	Virgin Spring, The (Swedish).....	dr A
—	3	—	Wackiest Ship in the Army, The.....	war-com AY
—	2	5	Walk Tall.....	wes-c AY
—	2	4	Walking Target, The.....	cri-mel AY
—	1	2	Wasted Lives and the Birth of Twins.....	soc-doc A
—	4	5	Weddings and Babies.....	doc-dr A
—	4	1	Where the Boys Are.....	com-c AY
—	4	9	Where the Hot Wind Blows (French).....	dr A
—	2	3	Wicked Go to Hell, The (French).....	dr A
—	3	—	Wild Rapture.....	trav-doc AY
—	3	—	Wild Ride, The.....	mel A
—	2	1	Wizard of Bagdad, The.....	adv-c AY
—	6	1	World of Apu (India).....	dr AY
—	8	6	World of Suzie Wong, The.....	dr-c A
—	2	8	Young Jesse James.....	wes-dr A

The Consumers' Observation Post

(Continued from page 4)

SPIKE HEELS ARE A MENACE TO FLOORS—it doesn't matter what kind, linoleum, carpet, oak, terrazzo. All suffer from the impact of a spike heel. The menace is so great that the Boeing 707 jetliner is coming out with a new type of floor, because the aluminum honeycomb floor panels previously used were broken down under the impact of the spike heels.

* * *

GLAZED CHINTZ is a popular fabric for draperies, bedspreads, slip covers, and garments. It is available in both a durable and a non-durable finish, reports the National Institute of Drycleaning. The non-durable finish is removed in both dry cleaning and wet cleaning. Some glazed chintzes sold as durable may also lose their finish or a portion of it when they are cleaned, and there is no way to restore it. Cleaning may also cause dulling of the fabric surface, streaking, and change of "hand." The N.I.D. reports that one simple way to identify the non-durable finish and the durable resin finish is to apply a drop of iodine solution to a sample. If the spot turns blue, the fabric is the non-durable type.

* * *

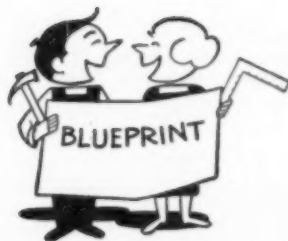
THE NEW COMPACT CARS are popular not only with the customers, but with mechanics who work on them. According to Motor, the uncluttered engine compartments and accessibility of the components are welcomed by mechanics. The editor points out that the free and open design means fewer hours spent unbolting miscellaneous hardware to get at a particular component, and fewer bruised knuckles.

* * *

HOUSE PLANTS ARE BEING INCREASINGLY USED for striking effects in home decoration. There are a number of varieties that, properly placed, introduce freshness, restfulness, textures, and shadows even in a room where there is little or no sunlight. Adequate use of electric lighting makes it possible to grow foliage plants in spots that have little or no daylight. Plants require some light, either natural or artificial, and soil that is relatively low in moisture. Leaves should be kept clean and free from dust. An excellent pamphlet on the types of plants that can be used successfully, with instructions on caring for them, as well as attractive photographs showing varieties, containers, and location of plants is put out by the New Jersey Extension Service. Ask for New Jersey Extension Bulletin 327, available at 25 cents from the Extension Service, College of Agriculture, Rutgers University, New Brunswick, N. J.

Consumer Bulletin—

the blueprint for wise buying!



In its monthly issues Consumer Bulletin presents timely information on current recordings, the latest motion pictures, new textiles, developments in the food and drug field, household hazards, as well as reports of tests on household appliances, automobiles, radio and television sets, and many other items of daily living.

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LIPSTICK MANUFACTURERS are now permitted by the Food and Drug Administration to use certain coal-tar dyes. On a temporary basis, the Food and Drug Administration will permit the use of 11 of the 13 colors, previously banned, to the extent of 6 percent by weight. The new law that went into effect on October 12, 1960, on publication of the first of the new regulations under the Color Additives amendment, lifted the ban on 11 colors and provided a testing period of 2-1/2 years to complete tests for establishing safe limits for the use of these colors. The 6 percent limitation, which will stay in effect until more extensive tests can be completed, is a temporary tolerance arrived at on the basis of subacute toxicity tests on animals.

* * *

THE HOME MEDICINE CABINET should be inaccessible to children. Ninety percent of the accidental poisoning cases in 1958 reported to the National Clearinghouse for Poison Control Centers were in children under five years of age. Currently a medicine cabinet has been developed by Dr. A. L. Chapman of the Public Health Service that has an ingenious lock, difficult for a child to open. It has five buttons, three of which are intended to confuse the child, for the cabinet will open only when the second and fourth buttons are pressed simultaneously. The cabinet is not yet available for home use, but no doubt will be on the market eventually.

* * *

THE DOWN PUFF is now getting competition from the Acrilan comforter. The National Institute of Drycleaning made a study of five comforters to see how well they stood up in dry cleaning. The results in some cases were disappointing, for the comforters lost resilience and showed decided flattening. It was not possible to fluff up the batt by any known treatment. There are, however, special cleaning techniques that would enable the comforter to retain its lofty feel and appearance. Be sure your dry cleaner knows just what handling is required for satisfactory results.

* * *

MOTOR BOATS are so numerous that accidents and insurance fees are increasing. Only one state, New Jersey, requires boatmen to pass a test demonstrating their ability in operation, and only seven states set a minimum age for boat operators. Inexperienced and careless power boat users are a threat to other pleasure craft operators, water skiers, and swimmers. Although there is lack of regulation in most sections, the Coast Guard patrols busy ports and national inland waterways. States should devise comprehensive boating codes and set up some techniques for controlling pleasure craft traffic before the accident toll increases, and power boats become a national menace.

Consumer Bulletin

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Rechargeable flashlights



Life Lite Super 200 shown at the left, the Life Lite Galaxy at the right.

THE development of a storage battery using a non-liquid electrolyte has helped to make possible a practical rechargeable flashlight battery. The cells used in these new lights are usually of the nickel-cadmium type which are sealed and can be recharged again and again. The usual storage battery known to most consumers is the familiar lead-acid battery under the hood of the family car. Batteries of this design were used for a time as rechargeable flashlight batteries, but they were inherently disadvantageous because of the damage done by spillage of the liquid acid electrolyte.

The dry-electrolyte storage battery as typified by the nickel-cadmium cell has its paste or semi-liquid electrolyte sealed in (as is not possible with the lead-acid type of battery), and the nickel-cadmium cell thus affords a supply of electrical energy in a non-spillable, non-leaking form.

Within the last few months, there have been a good many advertisements of pocket-size rechargeable flashlights. These use nickel-cadmium and other types of sealed storage batteries. These flashlights have built-in chargers which provide for recharging of the exhausted batteries, a process which takes from 16 to 24 hours. Recharging is easily accomplished; a part of the flashlight is removed, usually the reflector and bulb and switching unit, and the remaining part, which has two prongs, is plugged into any convenient 120-volt a-c outlet. Batteries being recharged may be left plugged in for a good deal longer time than necessary to charge them, without danger of overcharge and corresponding damage to the battery.

Sonotone offers rechargeable batteries which have the same dimensions as two D-cell flashlight batteries together, and contain their own built-in charging units. Their new batteries can be used with many devices that are built to take two D-cells end to end in series.

Consumers' Research obtained samples of some American-made rechargeable flashlights, some made in West Germany, and a U.S.-made Sono-

Consumers' Research has just completed tests of a number of flashlights with batteries that can be recharged and can be used over and over again. For many families living on farms, or in the country, or having children in camp, this will be welcome news, for the cost of replacing dry batteries can mount up to a substantial sum over the years.

tone rechargeable battery. Tests revealed that these devices are practical and useful for some purposes. The light output from the larger flashlights compared favorably with that of an ordinary two-cell flashlight. The duration of useful light output was about the same (about 2 hours) for the *Life Lite Super 200* as that for a flashlight using two D-cells and the bulb commonly used for two-cell flashlights.

One class of rechargeable flashlights is smaller than the usual two-cell tubular flashlamp. Tests show that these give less illumination and have a considerably shorter life per charge, but nevertheless, their light output was sufficient to be serviceable for some uses. The small *Iloptix* and *Life Lite Galaxy* were useful as lights to be carried in a pocket or purse, but would not, of course, be considered a suitable replacement for a standard two-cell size flashlight. The *Geni* used a small battery of unknown type in a standard-sized flashlight. Its lasting qualities, however, were limited; it had the shortest working life per charge of the flashlights tested in the present study.

The bulb used had a great effect on duration of light per charge from the rechargeable flashlights as it did when used with ordinary flashlight batteries. (See article on page 25 of the September 1960 CONSUMER BULLETIN.) Instructions with all the lights (except *Iloptix*, which used a special
(Concluded on page 32)

**COMING
IN FUTURE
BULLETINS**

**Built-in electric ovens
and surface cooking units**

Frigidaire	Kenmore
General Electric	Norge
Hotpoint	Tappan
Westinghouse	

Sewing machines

Adler	Sears Kenmore
Brother	Singer
Elna	Wards Signature
Necchi	White

Automobile air conditioners

Upright food freezers

Electric floor polishers

Automatic washers

Blackstone	Maytag
Easy	Norge
Frigidaire	Philco-Bendix
General Electric	RCA Whirlpool
Hamilton	Sears Kenmore
Hotpoint	Speed Queen
Kelvinator	Wards Signature
Westinghouse	

Children's shoes

Consumer Bulletin

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